A CHRONICLE OF HIGHER EDUCATION & RESEARCH MAY 16, 1977 80 PAISE

tish Chandra, Chairman, University Grants Commission, delivering the Convocation Address at University of Jammu

BOARD OF

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF RAJASTHAN JAIPUR

Advertisement No. 1/77

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Note : One post of Reader each in Pol. Sc., History and Indian Culture, Accountancy and Business Statistics, Business Administration, Economic Admn. & Fin. Management, Continuing Education and Human Relations & Management Skills is for Institute of Correspondence Studies and Continuing Education.

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Note : The above posts of Lecturers include the following Lecturerships for the Institute of Correspondence Studies and Continuing Education : Economics-3 Mathematics-1, History-6, History of Indian Civilisation and Culture-1, Library Sc.-1, Pol. Sc.-5, Public Admn.-3 Sociology-3, Accountancy and Business Statistics-5, Bus. Admn.-4, Economic Admn. and Fin. Management-1, Statistics-1, Hindi-5, English-1, Continuing Education-1, Human Relations and Management Skills-1, Home Science (Nutrition and Dietetics) -2, Journalism-1, and Indian Languages (Tamil)-I.

5. X-RAY ANALYST (Geology)-1, MICRO ANALYST (Chemistry)-1 : In the scale of Rs. 400-40-800-50-950.
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1. Professors—Rs. 1500-60-1800-100-2000-125/2-2500.
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6. Assistant Registrars, Statistician and/ Co-ordinator (Exam. Reforms Cell) /Public Relation Officer —Rs. 750-30-1020-40-1300-50-1350.

Details of qualifications etc. may be obtained alongwith the prescribed application form or separately as the candidate may desire. Benefits of Provident Fund, D. A and other allowances will be admissible as per rules of the University. Candidates desiring to apply for more than one post must send their separate applications for each post. Candidates will be called for inteview at their own expense. **Persons who have already applied in response to our Adv. No. 1/76, 2/76 and 3/76 need not apply afresh. They may however, send on plain paper details of additional qualifications, if any, since acquired and/or additional work done by them and also indicating therein that they still wish their candidature to be considered by the University. Canvassing in any form will be a disqualification.**

(i) The University reserves the right to alter the number of posts in any cadre or subject.

(ii) Higher start may be given to deserving candidates.

(iii) In exceptional cases relaxation in the requirements of experience may be made by the Selection Committee at its discretion.

(iv) Selected Candidates are liable to be posted in any unit of the University.

L. P. VAISH
REGISTRAR

MADURAI UNIVERSITY

Notification

The Madurai University provides instructions by Correspondence for the Pre-University Course, B.A., B. Com., degree courses (Tamil and English Medium) and also for such Post Graduate Courses as M.A., (Tamil, English, History and Economics), M.Com., and B.G.L. (English Medium except M.A. Tamil). These courses are open to students from all over India.

Details and particulars regarding the above can be had from the Director, Institute of Correspondence Course and Continuing Education, Madurai University, Palkalai Nagar, Madurai-625021 on request with a self-addressed and stamped (25 paise) envelope. The envelope should be of 22 cm. × 12 cm. in size. Requests for particulars without self-addressed and stamped envelope will not be entertained on any account.

DIRECTOR
Institute of Correspondence Course and Continuing Education

Steel Mills

The construction of steel mills during the Five Year Plans ushered an industrial revolution in India. They provided steel for improved agricultural implements and agricultural machinery. Tractors which were not at all manufactured in India are now manufactured in significant numbers, and there is scope for further expansion in the manufacuturing capacity of tractor factories.

Green Revolution in India 1966-72

A most significant development in Indian agriculture since independence is the Green Revolution in some States, in northern India, Gujarat in the West and Andhra and Tamil Nadu in the South. Green Revolution in India is most noticeable in Punjab, Haryana, Ganganagar District of Rajasthan and Western Uttar Pradesh. Why is it so? Apart from the human element, the experienced refugee farmers from West Pakistan who were resettled in these areas, they also enjoy the benefit of consolidation of holdings. The ownership of land is also equitable and with the implementation of the present land reforms no farmer would have more than 18 acres of double-cropped land. Besides, Punjab and Western Uttar Pradesh have well-developed agricultural universities which provide service to the farmers through research, education and extension. These states also have well organized co-operative credit societies which supply fertilizers to the farmers on loan basis and also make arrangements of marketing their produce through Marketing Federations. The Agro-Industries in the private sector provide threshers, seed-cum-fertilizers drills and other agricultural implements. This has resulted in training of large number of mechanics who serve the farmers in looking after their machinery. Apart from irrigation from canals, large number of tubewells have been sunk to provide irrigation. A tubewell owned by a farmer places a source of water at his command which he can use whenever he likes. The programme of rural electrification has given great impetus to sinking of tubwells. A net-work of roads has been provided and nearly all the villages in Punjab and Haryana are now approachable by *pacca* roads. Use of tractors has greatly helped in intensification of cropping and has promoted multiple cropping.

Mexican high-yielding dwarf wheats spark the Green Revolution in India

It is the introduction of high-yielding dwarf wheat strains from Mexico which sparked the Green Revolution in India. This agricultural revolution is the result of well-planned plant breeding research strategy and co-ordinated work approach of highly experienced agricultural scientists and bold administrative and policy decisions. The simple fertilizer trials conducted in farmers' fields during 1959-61 had revealed that the tall varieties then cultivated in India do not respond well to nitrogen application and have a tendency to lodge. Hence, in 1962, the Indian Agricultural Research Institute, New Delhi, sent a proposal to the Government of India that Dr. N.E. Borlaug of the International Maize and Wheat Research Centre, Mexico, may be invited to India and be requested to supply us with dwarf wheat material containing the 'Norin' dwarfing genes in order to break the barrier to high yields in wheat. Dr. Borlaug accepted the invitation and visited the major wheat growing areas of India in March 1963. This visit paved the way for our getting seeds of four commercial Mexican semi-dwarf wheats along with a few seeds of 613 different breeding lines. Seeds of this material were distributed by IARI in collaboration with the Rockefeller Foundation to the Punjab Agricultural University, Ludhiana; Pantnagar University in U.P. and to several other institutions. The performance of the Mexican varieties was very impressive.

The yield potential of Mexican wheats is as high as 60 quintals per hectare as against 30 quintals of the best indigenous tall wheats. This is mainly due to the *fact* that they are short-stemmed and can absorb large quantities of fertilizers without lodging as compared with the traditional varieties which grow too high, become top heavy and fall down. They are much more responsive to fertilizers at all levels of application.

Green Revolution has benefitted the entire population

Apart from providing food to the people, which is a basic necessity, Green Revolution has benefitted the entire economy of the country. Another feature of the Green Revolution as it has happened in Punjab and Haryana is that the social side-effects have not been adverse as in Pakistan and Mexico. This is on account of the remarkably equitable system of land distribution on account of peasant proprietorship with vast number of people working on medium-sized farms. The gains of the Green Revolution have been equitably shared by the farmers, agricultural workers, artisans who manufacture agricultural implements and shopkeepers who sell inputs. In fact, the gains of this agricultural change have widely diffused with the result that there is general well-being. Intensive agriculture has generated large demand for human labour for hoeing of crops. Even Mexican wheats, though sown with tractor-drawn seed-cum-fertilizer drills, are hand-hoed. Generous wages in cash and kind are given to farm labourers. Hence, the fruits of labour are shared by all.

An unparalleled achievement

We always look to foreign countries for inspiration and have a tendency to ignore or belittle our own achievements. Taiwan has population of the same size as Punjab, and is regarded as a model of success in agriculture. Punjab showed faster growth rate than Taiwan. Entire history of agriculture does no reveal an example of success as of green revolution in Punjab. Within a period of five years the production of wheat trebled. It rose from about 25 lac tons in 1967 to 58 lac tons in 1971. This is the result of introduction of new technology among the farmers. ●

Before the questionnaire was administered to a number of teachers of the same discipline assembled during a workshop, a lead lecture focussing their attention to certain basic principles of internal assessment was given. This was followed by detailed instructions for filling up the questionnaire individually. On one ocassion the number of teachers in different subjects present is given in Table I.

TABLE 1

S.No.	Subject	Number of Teachers
1.	Mathematics	24
2.	Physics	19
3.	Chemistry	20
4.	Botany	20
5.	Zoology	20
6.	Commerce	18
7.	History	18
8.	Economics	24
9.	English	26
10	Tamil	20

These teachers were drawn from different affiliated colleges and therefore represented a cross section of teaching community. It took them somewhere between 90 minutes and 120 minutes to complete answering the questionnaire individually. It was possible to consolidate their individual responses to every item and produce a consensus and give back to them. *These things are illustrated here :*

Section II

This is just a bio-data of the individual teacher where details like subject of specialization, subject/s taught at both Graduate/PG levels, number of years of teaching experience and involvement in some form or other of any internal assessment are called for.

After collecting responses of individual teachers, it is possible to study the relationships between these and their responses. Of course, such a study is not yet made. However, all their individuals responses of teachers of the same subject are collected together add the responses of teachers who have had a definite number of years of teaching the subject at the graduate and postgraduate levels are only considered for consolidation and working out consensus.

Section III

3.1 This is where the individual teacher indicates the subject for internal assessment design. This is the subject he has been teaching.

3.2 A checklist giving a list of outcomes of learning the subject at graduate/postgraduate level is presented. If the individual teacher thinks that an *item like application is one of the abilities developed* during the teaching/learning process, he will respond with a tick in the first box ☐. He will go over the entire check list and choose those that he considers relevant. In the second box, he then indicates the rank order for each one of the selected items, (e.g.) **2. Comprehension [✓] [3]. This means according to this teacher, in teaching his subject, comprehension ability is involved and that he/she ranks it 3.**

It will now be possible to work out the list of outcomes according to the entire group and also a group rank order can be easily worked out. In all there are 20 such items and the ranks may range from 1 to 20. For rank 1, allot 20 points; rank 2, 19 points ; and so on. Sum up for any one item, the points given by different individual According to the total points secured by each item, work out a group rank order. The group rank order reflects the thinking of all individual teachers and this is acceptable to all of them.

3.3 In this a checklist of outcomes of learning (as in 3.2) is given and the individual teacher is to respond in the two boxes provided by putting ticks and crosses. The first box relates to the end university examination obtaining now in their subject at this point in time. The second box relates to what he would like to assess in internal assessment.

A summary of all their responses in respect of any one subject will give us an idea of (1) what abilities, according to them, the present university examination in their subject does assess ; and (2) what abilities skills/attitudes etc. they would like to continuously and internally assess. This is a very important step and decision made by individual teachers studied and consolidated and a consensus worked out. At this stage in the design, outcomes of learning to be internally assessed are decided.

3.4. Perhaps this is the most important step This involves every individual teacher to select component tools of internal assessment from a list of 17 tools presented. In the first box, he puts in a tick to indicate that he will adopt this component tool In the second, he has to indicate the relative weightage to the components in respect of a certain number of components selected by him One way to get this easily sorted out is to get the individual teacher to distribute 100 marks to all these components selected already. Here again, group's solution can be worked out in respect *of every one of the 17 components.* It was found necessary to regroup them into six major components which are in tune with the present thin*king of teacher community in the country*

These six major components are

I Quiz (Announced/unannounced)

II Written tests (objective, short answer, long answer, problem types)

III Assignments/Tutorials (Class, home, library etc.)

IV Lab./Field/Practical Work/Project Work

V Personality traits (checklist, interest, attitude scales)

VI Group Discussion/Seminar/Thesis/Dissertation

Table (given at the end) gives the individual responses of various subject groups and the procedure of arriving at a consensus.

The same questionnaire was administered on Postgraduate teachers in the subjects of English, Economics, Botany, Mathematics, Chemistry, Physics and History. The individual responses were put together to obtain the following component/weightage details.

S.No.	*Components*	*English*	*Economics*	*Botany*	*Maths.*	*Chem.*	*Physics*	*History*
1.	QUIZ	10%	10%	10%	10%	15%	10%	15%
2.	WRITTEN TESTS	20%	25%	25%	25%	25%	25%	30%
3.	ASSIGNMENTS/ TUTORIALS	20%	15%	10%	20%	10%	10%	20%
4.	PRAC/LAB./FIELD & PROJECTS	5%	10%	30%	10%	25%	25%	—
5.	PERSONALITY TRAITS	20%	20%	10%	20%	10%	10%	10%
6.	GROUP DISCUSSION SEMINAR THESIS/ DISSERTATION	25%	20%	15%	15%	15%	20%	25%

3:5 An individual assessment format for "Announced and unannounced Quiz" is presented and the individual teacher is asked to respond to

(i) number of quizzes proposed for a semester or a year in the subject
(ii) class size
(iii) duration of quizzes
(iv) mode of conducting quizzes

This really means that the individual makes decision about implementing Quiz as a component part of internal assessment. It is possible to look at responses given by individual teachers teaching the same subject and suggest a consensus based on all their responses to 3.5. This will be the major component called "Quiz".

3.6 to 3.8: Individual assessment formats for objective type test, short answer test and long answer (essay) test are presented and the individual teacher is asked to respond to (each one of these)

(i) number of tests proposed for a semester or a year
(ii) class size
(iii) duration of tests
(iv) mode of conducting these tests

This means that the teacher decides on the number of tests, duration and the manner in which tests will be conducted. It is also possible to look at responses given by individual teachers teaching the same subject and suggest a consensus based on all their responses to 3.6 to 3.8. This will be the major component called "Written Tests" or "Periodical Tests".

3.9 to 3.11 : These relate to class assignments, home assignments and tutorial. Similar responses of individual teachers to questions like (i) number of them per semester or year (ii) duration (iii) mode of conducting etc. can be put together and a consensus can be worked out. This will be the major component called "Assignments and Tutorials".

3.12 and 3.13 relate to responses on Projects and Lab/Field/Practical work in their subjects. Their responses would help consolidate and work out a consensus regarding (i) the number of individual and group projects, number of experiments/exercises per samester or year, (ii) duration for these activities (iii) mode of operation. This will be the major component called "Lab./Field/Practical work and Projects".

3.14 to 3.16 involve decisions to be made by the individual teacher in respect of using rating scales for evaluating "interest" and "attitude" and checklist for personal traits. Formats of rating scales for interest rating and attitude rating are given. They have to respond to questions relating to

(i) number of times ratings are proposed on every individual student in a semester or year
(ii) duration
(iii) mode of conducting these ratings

These will be the major component called "Personality Traits".

3.17 A format for Group Discussion/Seminar is presented. The individual teacher is asked to respond to

(i) the number of seminars/discussions per student in a semester
(ii) the duration of these activities
(iii) the mode of conducting these

It will be possible to work out a consensus putting together the responses of individual teachers. This will be the major component called "Group Discussion/Saminar".

Thus an internal assessment design is made with the help of a number of teachers teaching the same subject respond to the questionnaire and this consolidation and consensus solution is not only acceptable (to all of them) but also a desirable solution indeed. Psychologically everyone will feel a sense of participation and involvement in decision making and there will be every reason to believe that teachers will put in any amount of extra effort and time to implement their solution. It is suggested that this exercise is undertaken every year afresh and will generate better and improved solutions year after year. This is the "illuminative" character of this kind of questionnaire. However the responses by teachers at any point in time will depend on the knowledge/equipment of teachers and their willingness and awareness of the problem in its full depth. It is reasonable to hope that as time goes by, it will be possible for any group to think together and work out a solution acceptable to all of them. This kind of design has both rigidity and flexibility—rigidity is to be understood in terms of the six major components as common for all subjects—flexibility is there in that different groups of different subject teachers will come up with different weightages for these components, thus truly reflecting the nature, character and objectives of their subjects in the process of teaching/learning. Some universities insist on uniformity not only in terms of components but also in terms of weightages. It is common sense however that different subjects will have to have different weightages for these components of internal assessment and a lot of damage will be done with this kind of uniformity which is usually resorted to for purposes of administrative convenience. Increasingly we should begin to trust our teachers and be prepared to effect change in our administrative practices to suit the innovation to be implemented.

Results & Findings

1. A summary of information from universities adopting an internal continuous assessment in some form or other has been made and reported in Monograph on Internal Assessment for universities.

2. Details of analysis of responses to the questionnaires from various subject teachers of Madurai University are given along with. A complete design of internal aseessment based on the consensus of views and answers from teachers (who are going to implement the system) has emerged. It is reported in Monograph on Internal Assessment.

3. A 'Monograph on Internal Assessment' for universities is now ready and is being printing for circulation to universities.

4. The consensus (in regard to internal assessment marks and end examinations marks) that these are shown separately.

5. If Grading System is adopted, it is more likely that they are shown separately.

6. It is proposed to continue this illuminative research study in the coming years also. ☐

TABLE

S. No.	Components	Major Component	Maths.		Phy.		Chem.		Bot.		Zool.		Econ.		Comm.		Hist.		Eng.		Tamil	
1.	Quiz (announced)	Quiz	6	13	5	14	6	14	6	12	7	15	5	12	6	14	7	16	8	17	6	13
2.	Quiz (unannounced)		7		9		8		6		8		7		8		9		9		7	
				[10]		[15]		[15]		[10]		[15]		[10]		[15]		[15]		[15]		[15]
3.	Objective type test	Written	12		10		13		10		11		13		10		14		13		11	
4.	Short answer test	Tests	14	35	14	36	11	31	12	32	11	33	16	46	13	34	13	46	14	40	12	39
5.	Long answer/Problem solving test		9		12		7		10		11		17		11		19		13		16	
				[35]		[35]		[30]		[35]		[30]		[45]		[35]		[45]		[40]		[40]
6.	Class assignments/ tutorials	Assignments/ Tutorials	10	17	7	13	6	11	6	12	5	8	7	13	8	16	6	13	10	19	9	17
7.	Home Assignment		7		6		5		6		3		6		8		7		9		8	
				[20]		[10]		[10]		[10]		[10]		[15]		[15]		[15]		[20]		[15]
8.	Individual Project	Lab. Work	4		5		3		8		3		3		5		1		3		3	
9.	Group Project	Project	3	7	1	20	1	21	3	19	3	19	2	8	3	11	3	4	2	5	1	4
10.	Lab./Fieldwork/Practical		0		14		17		8		11		3		3		0		0		0	
				[5]		[20]		[20]		[20]		[20]		[5]		[10]		[5]		[5]		[5]
11.	Observation		3		4		5		4		6		2		3		4		0		3	
12.	Checklist	Personality Traits	3	15	1	7	2	13	2	13	2	12	2	7	2	11	1	9	0	5	1	6
13.	Rating scale interest		5		1		3		4		2		1		4		3		4		1	
14.	Rating scale attitude		4		1		3		3		2		2		2		1		1		1	
				[20]		[10]		[15]		[15]		[10]		[10]		[10]		[10]		[5]		[5]
15.	Group Discussion		5		3		3		3		4		6		6		6		5		6	
16.	Seminar	Group Discussion	6	13	6	10	5	10	5	12	6	13	6	14	6	14	6	12	5	14	8	21
17.	Thesis (Dissertation)		2		1		2		4		3		2		2		0		4		7	
		Seminar thesis/ Dissertation		[10]		[10]		[10]		[10]		[15]		[15]		[15]		[10]		[15]		[20]

Changing Pattern of Education in Gujarat

Relevance of the American Experience

B. J. Bhandutia*

The educational system in Gujarat is in the process of switch over from 11+4 to the 10+2+3 pattern of education. It will take some 4 years more to unfold its performance. In the meanwhile it has its own expectations :

- The two tier public examination, first at 10th and second at 12th, will reduce percolation of vast numbers to universities and thus reduce pressure on the system of higher education.
- The trade bias at +2 level will siphon off a good number of students from academic flow to the trade flow.
- The syllabi of the academic flow shall need revision so as to yield better social results.

We shall all feel happy, if we succeed in keeping the deviations between expectations and performances, to the minimum. However, for any change, what matters is not merely a change in structure, but also a change in our attitudes and approaches. Thus to my mind the problem is not merely financial or organisational; it is a problem in social change that involves the State, the teachers, the taught, the parents and the society at large.

Recently, I, along with other college principals of Shree Nootan Kalavani Mandal, Valsad had the opportunity to visit the U.S A. and to observe and understand its educational system. We would not like a blind follow of everything American. However it would be scientific to pick up a few good points, particularly their attitude and approach towards the educational system and see their relevance to the change in Gujarat, which is in the offing.

Firstly, the effort at +2 stage for trade training must be genuine. It calls for more financial outlay and also support from industry and trade. In this connection, I would like to cite my visit to Parkland Community College, near Illinois University. The idea of community colleges is widely prevalent in the States. The community colleges are known as junior colleges also. They have a dual role to perform. They offer studies leading to technical and semi-professional occupations which are akin to what we call job oriented courses and also prepare students to enrol in four year or degree-granting institutions, which are also known as transfer courses. These community colleges are locally controlled but predominently publicly financed.

Here we saw a job-oriented course laboratory for watch-making and watch repairing, in which the students were asked actually to work on different types of watches and their parts. We also saw a laboratory for Automobile repairs. We were told that the students are asked to dismentle their own automobiles and then to reassemble them under the active guidance of a teacher. A big tractor manufacturing company had given a tractor to this College and it desired that the learning students should dismentle it and reassemble it, so that they learn the beauties, the technique and good points of the tractor manufactured by he Company. Thus for every trade taught, we saw a laboratory-cum-workshop where the students can work and gain self-confidence.

These laboratories, naturally involve huge financial outlay. The watch making laboratory we were told cost about 250 thousand dollars, which was just the fixed cost.

In Gujarat, if we really want a big siphoning effect at +2 we have to :-

- Locate the jobs and trades which are most needed by the community and offer their training at +2 stage.
- Find out teachers who know these jobs and trades fully well. This is very vital because minus these teachers, the trained and certified graduates may not fit into the society.
- Provide the needed finance for the erection and running of up-to-date laboratories in each of the trades taught.
- Get co-operation of industrialists and trade for help and absorption of the trainees.

**Principal, Shah N.H. Commerce College, Valsad.*

Now, the question as to where the +2 or Junior College should be located i.e. either with the schools or the colleges or an independent junior college unit should largely rest on our judgement as to which of them is better equipped for shouldering these responsibilities. Also, we have to review whether the strees on vocational papers at +2 is adequate enough to siphon our students to our polytechnics and in actual jobs or whether it would just allow the percolation of our students to the universities, as it exists to-day. The Govt. may well review the adequacy of its financial outlays and verify whether that would result into training the tradesmen we badly need.

As regards university teachers in States, we have come to know, they have to 'publish or perish.' In States for them it is hard work, not only the attendance of minimum hours prescribed Teaching is well planned; class-wise and lecture-wise portions to be covered are cyclostyled and given to students in advance i.e. it is not just the picking up of a link from the previous year/years' notebook, just a few minutes before the class lecture. The teaching method invariably puts a stress on classroom discussions and the classes are so organised that a student has got to resort to library and even engage in self-study. The academic education too is use-oriented. The students are trained to apply theories taught to them to the practical problems of daily life and they are expected to use their knowledge for the welfare of humanity at large.

The teacher has a lot of freedom, no doubt. It is he who teaches and it is he who evaluates. It is again he who gives credits, prescribes textbooks and designs courses. This practice unavoidably calls for a lot of hard work for gaining grip on the subject. Over and above, he is required to face peer group assessment and the students' evaluation. In the peer-group assessment, the Chairman of the subject would attend the class and observe the teachers' class work. He may make comments for improvement. Also the students are given prescribed forms to opine about the teacher. The opinions are processed on the computer and the general opinion of all the pupils, is given to the teacher concerned. which provides him the guidelines to judge his own performance and if necessary to make improvements upon it.

A teacher gets confirmed (which they call tenure) not after two years but after five years. At the time of geting tenureship or confirmation, besides his publications, the peer group assessment and the students evaluation are considered.

The American University approach is to make teaching a real job; a job for the teacher to improve upon himself and a job to shape the students' career to suit the social needs. With the changing pattern of education in Gujarat, it is necessary that all concerned with shaping our education should change from degree giving approach to a purposive approach. The universities will have to restructure their course and syllabi. This too has to be done more purposively.

Regarding parent approach, let us know about results and fees. In Gujarat the Society evaluates, the performance of an educational institution on the basis of the percentage of results it achieves. Social and political leaders say that to fail students means wastage of youth energy To purposively fail a student is bad, but to purposively pass him even if he does not deserve, merely to satisfy a social criteria is still worse and almost criminal. The real waste seems to be to confer a degree on a student and leave him in the wilderness of unemployment, prevalent in the society. Regarding fees, probably we have the cheapest education. In America, the annual tuition charge on an average is $ 527 at State University and $ 2161 at a private university. The average Board rates fall between $ 616 (State) and $ 672 (Private). If in India, we do not want the poor to suffer on account of higher fees, the best way for the state is to grant them scholarships and freeships or adopt other means of subsidising their education. But to support those who are rich and can afford to pay higher fees, does not seem to be convincing.

Lastely, but not the least, is the students' behaviour. In the States as the fees are higher, and mostly being not paid by parents but self-earned by the students, students were found to be behaving with a sense of higher responsibilities. Libraries were found to very large, richly equipped and at the same time well attended and busy. In the most affluent country of the world we did not find in the university students, that variety and colour in dresses of boys and girls as we do find even in a mofussil college campus in India. In many of our colleges, we observe students coming with only one note-book, mostly a diary book and at times without even writing material to be borrowed from somebody. In States we saw the students loaded with books, notebooks and even files. In the spare time we saw them lying in open lawns and reading books and not just chitchating. Even in the student lounges they were found to be disciplined and playing games with full vigour. In short, we felt, whatever they did they did it with full sincerity and vigour accompanied by discipline and polished manners.

I would once again repeat, I would not recommend a blind follow up of American system. But when we are changing from one pattern to another, let every one ask why do we need a change? Let every one know its purposes to enable each to contribute his might for achieving them. Else it is likely to be just an experiment in change, which would not really change the present system either noticeably or usefully and which may not also result into social gains. ■

Role of Universities in National Development

All over the world, universities today are playing a crucial role in many fields. They continue to play an important role in expanding the boundaries of knowledge. They have a crucial position in preserving and transmitting cultural values to the coming generation as well as to the wider community. Their role in national development has been emphasised and is growing. Whether it be programmes of adult and continuing education, or of integrated rural development, or training the citizen for democracy, universities are inevitably drawn into the programmes and are called upon to provide personnel for training and evaluation purposes. Can the universities fulfil these onerous tasks? Not only are the universities geared to such multifarious activities, administratively and organisationally. University teachers are only gradually beginning to understand and react to the greater challenges with which the universities are faced. Financial constraints, lack of understanding and sympathy are the part of governments, on occassion, and undue interference in the internal processes of universities by outside agencies, including political parties, has sometimes hampered universities to rise to face the challenge. Generally speaking, universities have tried to copy with the new situation. The UGC has tried to act as a clearing house for new ideas and innovative programmes, and in the process, many universities, especially young universities have shown a great deal of drive and enthusiasm.

There has been a good deal of debate in the world regarding the cost effectiveness of higher education. Economists have debated whether education should be viewed as a producer or as a consumer or as both. Since I am not an economist, I cannot enter into a discussion of these fine shades and concepts. There is, however, an increasing recognition of the fact that education, particularly higher education, has a direct co-relation with the economic development of a nation, and can help in speeding up social and cultural changes in a country. It is, therefore, no accident that leading countries in the world such as the U.S.A, the USSR, Germany, France, Britain etc., have considerably increased their expenditure on education. There are many parameters for judging the development of a country, such as the number of doctors and the hospital beds per capita, the amount of energy consumed per head, the number of cars, refrigerators, TV sets etc., per head and so on. For a country such as India where conspicuous consumption has always been looked down, some of these parameters may not be very meaningful. I am quite sure that one of the important indicators of development ought to be the expenditure on education.

From the point of view of expenditure on education, the position of India is fairly low in the comity of nations. Although between 1950-51 and 1970-71, the educational expenditure increased from 1.2% of the GNP to 3.1% (declining to 2.9% last year) it is way below world standards. USA and Canada spend 6.6% of their GNP, Europe 5.3% and USSR 7.6%. Even the Asian average is 3.9% excluding Arab States. This situation has led to serious anomalies. While India has the third largest trained scientific man-power in the world, in expenditure on education in terms of GNP we are below Sri Lanka, Malayasia, Nigeria etc. It does not mean, however, that our educational standards are low. Our scientists and teachers are welcome in West Asia, Africa and even in Europe and the U.S.A. It means we have a small infra-structure, *i.e.* the number of students in secondary schools should be far larger. At the level of higher education, while we have large numbers of university departments and colleges, only a few of them are able to maintain high standards. Even our Centres of Advanced Study and Departments of Special Assistance are not adequately funded and we have critical shortage of specialists. Recently, a French scientist wrote to me, "We have one hundred endocrinologists in Paris. How many do you have in India?" Though we have tried to invest in human beings in the present plan and about 900 senior faculty positions have been sanctioned in the universities, the efforts are still too little in terms of needs. We are keen today to encourage scientists to devote themselves to rural development. For this, a whole new cadre has to be built up. But do we have the men or the means? Of course, the nation has many urgent needs and we must try to make do with what we have. However, I do hope that any fresh look at the Fifth Plan would give an opportunity to agument the educational expenditure and restoration of cuts effected in the past.

There is also the well recognised tradition in our country, that an educated man is expected to be the conscious keeper of the community, and to contribute to social and national development more than his uneducated counterpart. The intellectuals are not only expected to play a definite role in applying their knowledge for the welfare and development of the community in its widest sense. One of the functions of the university community is to act as the democratic conscience keeper of the nation. This historic task has been discharged by the intellectuals of many nations. Intellectuals in our country have also played a distinguished role in this noble struggle. Consideration will have to be given how these traditions can be strengthened. In this context, the rules for the governance of universities may have to be examined afresh. It was a distinguished jurist, Dr. P. Gajendragadkar, under whose Chairmanship, the report on the Governance of Universities had been prepared and accepted by the UGC.

Unfortunately, the spirit of the Report has been violated in many cases. It is incumbent upon Government not to interfere unduly in the internal processes of universities. The question of what to teach, how to teach, how to evaluate courses, as well as whom to appoint are issues which should best be left to the universities. It is also necessary to ensure minimum security of service to the teachers including senior teachers. The UGC had invited universities to frame their own codes of conduct for teachers, so that duties are prescribed along with privileges. It was well understood that the code of conduct applicable to government servants could not be applied to intellectuals, for intellectuals, work can only proceed on the basis of self-regulation. This has not always been kept in mind. Senior academics should not be sought to be retired pre-maturely without ensuring and providing for safeguards and procedures for appeal, lest an atmosphere of witch-hunting and fear be allowed to pervade the academic corridors. These are issues which need urgent remedies.

While basic research must continue to be the responsibility of the university, their responsibility of developing project oriented research is no less. The University Grants Commission has been laying considerable emphasis on the universities orienting some of research activities towards development. The Commission has been providing assistance outside the Fifth Plan ceiling to universities for research. Generally speaking, 1/3rd of our research fund is devoted to project-oriented research, and 2/3rd towards basic fundamental research Since the National Laboratories are mainly devoted to Research and Development type of research, it appears desirable for the universities to give greater emphasis on fundamental reasearch. In choosing their research topics, however, universities ought to choose subjects of national relevance so that new knowledge could be quickly applied for national development.

In order to link the academic community in the universities more closely to the wider community, the University Grants Commission has been laying emphasis on a number of programmes. For instance, it has laid considerable emphasis on programmes of Adult and Continuing Education. Programmes of Adult and Continuing Education are mainly intended to serve those people who, for some reasons or the other, were not able to get as much as education as they desired, or who are keen to add to their knowledge either for its own sake or for improving their prospects in life. Another aspect which the Commission emphasises is education for the formation of better informed citizens, *i.e.* citizens who could take part in the democratic processes with a full realisation of its potentialities as well as its responsibilities. The universities are pre-eminently suited for these programmes by drawing upon the expertise within the university, as well as involving persons from the wider community. While drawing up programmes of Adult and Continuing Education, universities have been advised not to confine themselves to the needs of professionals and the upper middle class. Courses for professionals—doctors, engineers, etc., are obviously important. But programmes of Continuing Education should also try of cater to other sections, such as housewives, shop-keepers, small and medium entrepreneurs, teachers both at the university and at the school levels, as well as workers—urban and rural, army personnel etc. In each case, the programmes will have to depend on the needs of community, the available expertise in the university and in the community etc. Thus, in Jammu, there are sizeable number of transport workers and army personnel. It may, therefore, be appropriate for the university to devise pragrammes for meeting the needs of these two sections. Before programmes of Continuing Education are embarked upon, it would be desirable to conduct a survey of the needs of the community. The philosophy of continumig education is a new philosophy which will have to be gradually imbibed by the universities as well as by the wider community, on the basis of their experience. The University Grants Commission has already organised a number of seminars and workshops in different parts of the country to draw in universities in this programme. Recently such a workshop for Northern Indian Universities was held at Simla in which many universities including Jammu University participated. The Jammu University has already put forward a programme of Adult and Continuing Education which has been accepted by the UGC and I look forward to its speedy implementation.

Universities cannot remain aloof from the problem of adult literacy. Both students and teachers have in many universities, under the NSS Scheme, taken keen interest in programmes of removing illiteracy. Greater emphasis will have to be given on this programme. Another function of the universities is to help to prepare books and reading material for newly literate adults. A recent survey has shown that in villages and townships there is a great dearth of such literature. Unless we have literature which can help the neo-literate in adding to their vocabulary as well as acquiring useful skills, people who have been recently made literate speedily relapse into illiteracy. Although our literacy percentage has risen from 24% to 35% the number of illiterates in India has increased from 293 crores to 387 crores.

There is a good deal of debate in the country regarding vocationalisation of education. At the university level, the University Grants Commission has favoured the idea of starting short term diploma courses which are aimed at a providing intermediate level skills to students thus improving the employability. Generally speaking, it is considered desirable not to mix up diploma courses with the regular academic courses. Short term diploma courses could be taken by students either in their spare time or after their graduation. Generally speaking, universities can act as resource personnel for such programmes and also to draw up on the expertise available outside the university. Some of the universities, such as Gujarat University, Ahmedabad, Bangalore University, Delhi University, Madurai University and others have developed a number of useful programmes such as Book Production, Tourism, Chemical Analysis, Laboratory Practices, Secretarial Practices, Office Noting and Drafting, Stores Management, TV repairs etc. It is obvious that these short term diploma courses are closely linked with the philosophy of Adult and Continuing Education. While these courses would normally be admissible to university students, the universities would not debar other people from taking advantage of these programmes. Once again I would like to emphasise the need of undertaking these programmes only after a careful survey has been carried out of the job opportunities in the regions.

These and the other programmes have to be seen within the framework of the philosophy of 10+2+3. As a greater degree of vocationalisation is introduced at the plus 2 stage, the ability of the students to apply their theoretical knowledge to practical problems will improve. This will give an even wider scope to short-term diploma courses in the universities and colleges.

Another problem which arises is the problem of restructuring undergraduate courses. The science graduate needs a broader base in science with some exposure to social science and humanities. Steps are being taken to restructure science courses in this direction. The problem of making the liberal arts graduate a more useful member of society is a complex one and has botherd many countries in the world. Thus it has been suggested that an educated person should have an "informed acquaintance" with the following: (a) "The mathematical and experimental methods" of natural sciences; (b) The "main forms of analysis" and the "historical and quantitative techniques" used in modern social sciences; (c) "Some of the important scholarly, literery and artistic achievements of the past"; and (d) "The major religious and philosophical conceptions of man".

The University Grants Commission has recently decided that the first degree should provide a broad general education with three components. The first component is an awareness of the world around, a sense of values and a commitment to the ideals and practical goals which the country has placed before itself. This implies a knowledge of human affairs at the level of individual, of society and of history, the main elements of the social and economic struggle, our Constitution and our Plans, field work and social service, and elements of Philosophy, Fine Arts and literature- The second component is the promotion of communication skills which implies training in language, speech and writing. The third component is the study of some selected subjects. The problem is to provide for sufficient depth study while providing a broad base. Since science will now be taught to all students upto Class X and academic subjects of a broad survey nature will be introduced at the plus 2 level, it may be possible that some acquaintance of depth studies be introduced at the undergraduate level. Today, "alienation" is a popular word. Can we 'alienate' the arts graduate from the Computer by not teaching him how to talk to the computer ? These, again, are issues which will have to be considered carefully, not only by academics, but by all those who are concerned with the fruits of education.

[Extracts from the convocation address delivered by Prof. Satish Chandra, Chairman, U.G.C. at the University of Jammu.]

Ramanna's call to scientists

Dr. Raja Ramanna, Director of Bhabha Atomic Research Centre, Trombay, while addressing the annual convocation of Sambalpur University appealed the scientists and young graduates to play positive role in bringing about an all round improvement in the lives of mankind. He said that there was no branch of human life or material world which has not been touched upon by science. The country had made rapid strides in all branches of knowledge starting from engineering, medicine, technology and agriculture to space satellite. Atomic energy had developed many new techniques and had played a vital role in the development of all branches of khowledge but still a lot of things for the benefit of mankind could be achieved by properly utilising this energy.

Tremendous development has been brought about in the development of agriculture by applying radiation technology. One could yield better produce by bringing about molecular change in the seeds by radiation. In a predominently agricultural state like Orissa, the radiation technology should be applied extensively.

Dr. Ramanna said that thousands of years ago, astronomers had to study the planets and other celestial bodies with open eyes. Today the scientists were put to a better advantageous position with telescopes, X-ray, gama rays and satellites. Modern implements gave them tremendous information about the outer world. All the benefits were due to the development of science and atomic energy. Science was also trying to solve several mysteries such as the creation of life and universe and the power and use of biology and possibility of changing gene. It was possible today to put one human being's character in another man. This perhaps explained why a son sometimes inherited the father's behaviour.

Creativity Conference held at Bhopal

The Department of Science of the Regional College of Education, Bhopal, organised a conference on Creativity in Physics at undergraduate level with the financial assistance of the University Grants Commission. Dr. J. S. Rajput, Director of the conference, outlined the broad areas to be covered at the conference and emphasised that in view of the recent changes in curricula at the school level, the problems of creativity has assumed vital importance. He asked the science teachers to change their teaching methods and advised them not to confine only to the lecture methods which made the role of students very passive. It is difficult to nurture creativity among the students unless the teacher is adequately motivated to get himself actively involved in creative effort. The specific type of endeavour has to be decided by the teacher himself, depending on the place of work, the facilities available in the school and its vicinity. Lack of facilities and resources has to be overcome.

Dr. K. P. Nayak, Principal of Bhopal College, in his inaugural address emphasised the importance of democratic orgnisation, curriculum, dynamic methods, imaginativeness, concept level teaching, involvement, open ended assignments in fostering creativity. He also referred to the education gap theory and its implications in devising methods of instructions.

Prof. S. N. Tripathi described the norms of the creativity as understood by the educationists. He pointed out the ways and means which can help in fostering creativity and discussed certain cross cultural studies which show that in India, obedience, courtesy and punctuality are taken to be the characteristics of an ideal student, while this is not so in the developed countries.

Prof. B. L. Saraf narrated his experiences with the curriculum development programmes of the country during the last 10-15 years. He emphasised that concept teaching should be stressed at all levels and in this connection referred to his experiences in the schools of USA where in general the teachers act as a guide and the students learn by doing with the help of their enriched environment. The instructions are repeated and the students learn through the guidance from the teacher, experimentation and through the reference materials. He further emphasised the need for proper textbooks, assignments and a clear understanding of social problems in teaching of science with determined and well planned efforts. Prof. A. P. Saxena in his address emphasised the importance of demonstration experiments in teaching of physics at undergraduate level for maintianing interest, stimulating discussions and active thinking, all of which are important ingredients for fostering creativity. Dr. S. N. Shrivastava of Allahabad University emphasised the need for a careful look at syllabi in order to avoid overburden of the students. In his view, this was one of the factors which kills the creative talents of students.

The conference made the following recommendations :

1. Lectures should be of general type covering wide area where the teacher should aim at familiarising the students with various conceptions connected with the topics covered. He should sum up various problems that arise in that connection without actually solving them, with the expectation that the students with a little help from the teacher can solve these problems in the tutorials which should bear a ratio of 3:1 to the lectures. The tutorial group should not consist of more than 10 students. The seminars could be arranged in groups of 20-30 students to evaluate their performance. The syllabus should be decided keeping this structure of teaching in view and not in the conventional form as it is prescribed today.

2. Laboratory work related to theory teahing experiments should be open ended in the sense that they may be performed not only within the prescribed limitations but beyond them, with a view to explore what happens when deviations from the normal course become appriciable (for example experiment of simple pendulum with large amplitudes). Apparatus should not be a closed box with few push buttons but every thing should be open and fairly simple so that it can be fabricated by the students themselves Some experiments should be for developing concepts whereas some simple experiments should be designed for attaining higher precision.

3. Regarding creative teaching learning process and its evlauation it was suggested that the testing of creativity should go along with teaching learning process. The test item should be thought provoking and framed in such a way that (i) there are many correct answers, (ii) it is as far as possible related with actual life situations, (iii) it is able to judge the originality of the student. The relevent questions asked by the student during teaching learning process should be given due credit.

CAMPUS NEWS

Roorkee suggests model engineering curriculum

A model curriculum for a four-year degree course of engineering education has been prepared by the Curriculum Development Centre of the Civil Engineering Department of the Roorkee University at the instance of the Ministry of Education, Government of India The model takes into account the fast pace at which the science and technology are developing. In preparing it the centre organised a number of seminars in which the leading academicians, experts from industry and field engineers participated. The curriculum contains a core programme which while ensuring a sound grounding of students in latest scientific aspects of engineering makes provision of imparting to them enough professional training so that they may be capable of making their own contributions to industries in engineering projects soon after their graduation.

For improving the quality of training in technological education the Department of Civil Engineering has been chosen as a centre by the Union Ministry of Education under its quality improvement programme. About thirty technical teachers have so far secured under this programme postgraduate degrees in different branches of civil engineering. More than twenty persons have obtained the Ph.D. degrees. Under the various schemes sponsored by the CSIR and the University Grants Commission, the department admits candidates for research work in various fields. For the first time in the country the department has initiated a B.E. course in environmental engineering. The first batch of students admitted at the course has found gainful employment.

The department is also training about 162 students from Tanzania under the Government of India's policy regarding technological collaboration with and transfer of technology to developing nations A fresh batch of thirty students is expected to join during the next academic session.

Madras vacation programmes

The University Students' Information Bureau of Madras University organised a vacation work project for the benefit of students. The aim of the project is to enable the students to spend their leisure time and vacations in pursuing practical and useful skill to introduce them to the world of work ; to help them develop their personality by learning to work with others ; and to earn an allowance which would enable them to buy books or other items for their hobbies Mostly the following types of students are interested in utilising their vacation purposefully :-

(a) students who do not consider physical work below their dignity and have great desire to work;
(b) students who feel confident that the work will not interfere with their studies ;
(c) students who have lost the bread-winner of the family ;
(d) students from large families with meagre income ; and
(e) students who seek work experience.

They are required to do all sorts of jobs & works like clearing and arranging books and other material in libraries or in firms ; arrangement and inventory of stores , desptach work, checking advertisement and publicity items; job and pay card entries ; labelling and packing ; entries in passbooks of banks ; cyclostyling ; newspaper cuttings, cleaning up lights, shades, fans etc., oiling of fans and pumpsets ; plumbing repairs ; minor carpentry repairs, registration of letters and money orders at post offices ; name plate polishing, proof-reading and allied printing work ; stand-by work (when some regular member of staff goes on leave); sample distribution and demonstration ; service at petrol-pumps, cleaning of cars, scooters, motor-cycles etc., help in shops during peak-hours and on special occasions ; traffic surveys ; teaching of swimming and other games ; keeping score in games at club ; making and maintaining courts for games ; tuitions, payment of electricity and water bills and road tax ; help in shifting ; market data collection, reservation of railway ticket, help in security service, typing and stenography ; sales assistance : drafting replies to correspondence and time-keeping.

Appeals are sent by the University Bureau to the employees from both the private and public sectors to engage the students for suitable work during their vacations. Students are registered during November-February. Their bio-data are collected and arranged. A panel is prepared accordingly and sent to the potential employers for their consideration. The students are interviewed by the employers and then offiered suitable jobs.

Through the work experience during the vacation students learn discipline, team spirit, initiative, resourcefulness and contacts. The employers also benefit in getting temporary staff for clearing arrears of work, enabling the grant of leave to regular staff using the vacation workers as substitutes and planning of future requirement.

This year the Directorate of Collegiate Education of Tamil Nadu has also launched vacation literacy project with the aim of making the students take up some activity which will be of benefit to the society at large. The Director of Collegiate Education in a circular to the colleges in the State has requested the principals to encourage the students to take up the adult literacy project during the vacation. The students would be contacted by post so that they could participate in the programme. The students would be required to submit a report to the principals by the middle of June who would be able to teach during the vacation.

Grants to Calcutta University

A grant of Rs. 2.25 crores was recently released by the State Government to Calcutta University for the financial year 1977-78. This included a developmental grant of Rs. 28.92 lakhs. Even this leaves a big deficit of Rs. 61 laks in the budget of the university.

The Education Minister also announced the grants to other universities in the State for the year 1977-78: Burdwan University Rs. 95,75,246 which includes a develepment grant of Rs. 14,68,513; North Bengal University—Rs. 69,42,774 which includes a development grant of Rs. 6,65,286; Kalyani University—Rs. 65,25,506 which includes a development grant of Rs. 4,67,013; Rabindra Bharati University—Rs. 46,54,462 which includes a development grant of Rs. 10,31,407; Jadavpur University—Rs. 2,04,57,919 which includes a development grant of Rs. 10,48,648.

He recalled that the State Government's total grant for the Calcutta University was Rs. 8.71 crores from 1970-71 to 1976-77. In spite of this the deficit in the university budget has been rising. Dr. S. P. Banerjee, Registrar of the University has said that one reason for the mounting deficit was the legal conditions to a large number of endowments. Expenses in outstanding suits alone amounted to Rs. five lakhs. In many of the endowments, made long ago, a professor's salary was fixed in the scale of Rs. 300-500 p m. but the university has now been paying much more to professors, for example, Rashbehary Ghose Professor, Khaira Professor, Palit Professor, are drawing salary in the scale of Rs. 1500-2500. This apart, there has been a sharp rise in the price of chemicals and materials, library equipment, books and journals, postal charges, electricity rates, petrol prices, etc. The examination expenditure of the university has also gone up tremendously owing to the rise in the price of stationery and remuneration paid to examiners.

Modernisation of oriental studies

The Chairman and Deans of Boards of Oriental Learning of the Universities from the South met in Tirupati recently to discuss measures to make the study of oriental languages more relevant and useful. Prof. K. S. Murty, Vice-Chancellor of Sri Venkateswara University presided.

The meeting considered the feasibility of giving a common nomenclature to studies of oriental languages. Titles awarded now for these studies differed from place to place. For example, the title of Pulavar awarded in Tamil Nadu was awarded to those who pass the oriental learning in Tamil literature and the tiitle of Vidwan in Andhra Pradesh to those who completed the study of oriental learning in Telugu or Sanskrit. The meeting recommended that in place of titles like Vidwan and Praveena, degrees equivalent to BA and MA be awarded. It was further recommended that these courses could be supervised by the Faculty of Oriental Learning and the regular BA and MA courses by the Faculty of Arts. It was also suggested that the 10+2+3 pattern be adopted for the courses also with English as a compulsory language at the degree level and postgraduate study meant for specialisation of oriental languages. It was recommended that in the event of degrees being awarded in the place of titles, permission could be accorded to those who complete their postgraduation in oriental learning for taking up both research and MPhil. The meeting explored the feasibility of getting University Grants Commission's aid for oriental colleges and made recommendations in this connection. Prof. S. Sarma, Head of the Department of Sanskrit said that the recommendations of meeting would soon be sent to all the Vice-Chancellors of southern universities for their consideration and implementation.

PAU to set up new research centres

Dr. Amrik Singh Cheema, Vice-Chancellor of Punjab Aricultural University said that the university would set up a new rice research centre before the coming khraif season. The present research centre at Gurdaspur would be further strengthened to meet the needs of the farmers. At present the main research on rice is concentrated at Kapurthala but with the increase in rice production in other areas like Patiala, Gurdaspur, Amritsar and Ferozepur districts there was a need to set up new centres. The work on the development of fine grain varieties of rice was also being strengthened and the present average yield of coarse varieties is 38 quintals per hectare. The Vice-Chancellor hoped that if the researchers developed variety with fine grain quality and yield potential of coarse varieties the farmers could get almost the double income. He also said that the production of improved seed varieties of American cotton and the testing work would be carried out at Abohar. The university has already established a research station at Kheri in Sangrur district for the development of newer variety of cotton.

Rohtak conducts socio-economic survey

Rohtak University carried out a socio-economic survey of an adjoining village—Khanpur Kalan in district Sonepat. The Planning Forum of the University carried out the survey with the financial assistance of the University Grants Commission.

Khanpur is a big village consisting of 870 houses and has a population of six thousand. The caste composition of the village show that about 50% of population is Jat, 10% Brahamins and 40% Harijans. The village has one primary school and one high school. At a distance of about two kilometers there is a Gurukul for women which has a degree college, a training college and an ayurvedic college. About twenty households own tractors and there are about 100 tube wells and one gobar gas plant. Most of the persons are having small land holdings averaging less than five acres.

A random sample of 110 families comprising weaker sections mostly Harijans, petty traders, village artisans, sweepers etc. was taken. A large number of students who were given preliminary lectures and training of field survey techniques also participated. The method of random sampling was found to be most feasible. One of the most interesting features was that the village had large families in spite of three decades of family planning programme. 60% families had members from seven to fifteen and hardly 18% of the families were really small having members less than five. The analysis of the existing members in various families showed that 76% of the families had earning members upto two and 20% had earning members between three and four and the rest had more than four earning members. The demographic structure is highly distorted and the number of dependants in the family is quite large which seems to be the major cause of abject poverty in the village. The study about the survey of borrowings in the village showed that about 51% villagers continue to borrow from traditional sources, like village money lenders and landlords. 25% refused to disclose their sources of borrowings. Hardly 24% were making use of the only mini-bank and one commercial bank in the village. The major reason for not borrowing from the mini-bank or commercial bank was the requirements of security and the consequences, if loans are not returned in time. The relative comparison of the money borrowed in 1975-76 and 1976-77 showed that the indebtedness had decreased which reflects an improvement in the economic well being of the people. About 14% households had a standing debt between Rs. 300 and Rs. 600 and about 24% people had a standing debt more than Rs. 1000. The major part of the outstanding debt was for productive purposes. One of the most surprising findings of the survey was that 71% of the people in the village had not even heard anything about Five Year Plans. Of the people who know about 47% felt planning to be useful for the country. 51% people told that there was no programme for the development of the village. Most of the people complained that there was no arrangement for the cleanliness in the village. 85% persons expressed the views that they would like an increase in employment opportunities in the village itself and were going too far of places for employment purposes unless compelled by economic circumstances.

Social Service by Pant Varsity

A massive National Social Service programme was organised by G.B. Pant University of Agriculture and Technology in Jawaharnagar, a nearby village. Students and staff members of the Agricultural Faculty of the university and people of the village itself numbering about one thousand put-in four thousand manhours for cleanliness of harijan colony, irrigation guls, eradication of obnoxious weeds, cleaning of drains, cattle-sheds, kitchen gardens and residential compounds etc. The programme gave a new look to the village.

Students and staff members of the university started early in the morning for taking up the work in the village by the university buses. The social service work started at 8.30 A.M. and continued till 12.30 in the noon. Participants were divided into five groups and assigned different works under a supervisory staff. The programme was welcomed by the village people who themeselves actively cooperated in the programme.

Jawaharnagar is situated on Bareilly-Nainital highway just opposite the Pantnagar Railway Station, on the outskirts of the University Campus. It has about 200 farming families mostly belonging to Kumaon hills of Uttar Pradesh. There are 6 tractors and 15 tube wells in the village. The village has a primary schools and all children in school going age are attending school.

The village people have taken due advantage of the University extension services to improve their farming. Some of the residents have the proud record winning awards in crop competitions as well. Now high yielding crop varieties and cross-bred animals are not new to this village. Such efforts provide impetus to equip the village with the latest techniques of agricultural production.

The national social service is an integral part of the university curriculum under which weed control, cleanliness of the village, adult education, tree plantation, livestock improvement farm mechanisation and household management programmes are rugularly arranged by the university in neighbouring areas as well as villages in remote hills.

Aligarh plans agro-botanical complex

Aligarh Muslim University has planned a scheme of constructing a huge agro-botanical complex in an area covering 170 acres of land lying across the railway line. The entire land has been divided into seven blocks for different purposes. Botanical experiments have already been laid down on an area of two acres. There are areas earmarked for plantation of orchards, mango, gauva and citrus. The land which remains uncovered from year to year will be grown with agricultural crops and until the orchards start bearing fruits agriculture crops will be grown as intercropping.

The university has also cleared all obstacles in the establishment of an Institution of Petroleum Technology. The United Arab Emirates would be contributing capital expenses incurred in the establishment of the institute.

Scientists boycott interviews

The scientists and technical workers in the Indian Agricultural Research Institute, New Delhi, have decided to boycott the interviews to be conducted by the Agricultural Scientists Recruitment Board as a part of the programme to assess the performance of farm scientists for promotion. The boycott is in protest — against the alleged irregularities and cases of favourtism in the recruitment of departmental scientists in the Agricultural Research Service. According to the Secretary of the Scientific and Technical Staff Association, the working conditions of scientists have worsened during recent years. The Association is demanding the complete overhaul of the ICAR in accordance with the recommendations of the Gajendragadkar Committee.

ICSSR centre at PU campus

The Indian Council of Social Science Research will start a regional centre on the Panjab University campus shortly. Dr. V.S.D'Souza, Head of the Sociology Department will be its Director. A sum of Rs. two lakhs would be made available by the Council with a matching grant from the Punjab and Harayana Governments as well as the Chandigarh administration. The centre will serve the entire north-western region. It will also provide for the hostel facilities and have its own guest house. Library facilities with provision for reference and documentation and inter-library resources services will be developed. Consultancy and guidance services will be offered for the promotion of social sciences research which has hitherto suffered from comparative neglect.

Mr. D.P. Verma, Registrar of Panjab University, said that the UGC committee after holding prolonged discussions recommended a grant of Rs. 40 to 60 lakhs to meet the assessed Fifth Plan needs of the Departments of Chemical Engineering and Pharmaceutical Sciences of Panjab University. The grant would be utilised for purchasing costly instruments and books besides financing research work.

Madras for meaningful undergraduate courses

The Undergraduate Review Commission of Madras University would be finalising its recommendations on the structure of undergraduate courses by the middle of September. Dr. Malcolm S. Adiseshiah, Vice-Chancellor of the university, while addressing the Commission said that it would be difficult to provide the curricula and syllabi which would be the concern of the Board of Studies. But the framework of the structure would be considered by the committee and would be discussed by the various university bodies. It is proposed to implement the recommendations by 1980-81. The task force on language and foundation courses, core course and supporting courses would be meeting soon by the middle of July to give their detailed suggestions. The views of educationists, principals of colleges and others are being ascertained on different matters by the Commission.

Special cells in IITs for weaker students

The Indian Institutes of Technology have organised separate cells as a measure to help the students from the scheduled castes and scheduled tribes to take special care of their needs. These cells consist of coordinators for the SC/ST programmes and advise to review the programmes of those students on a continuous basis. The IITs also organise special coaching for such students. Classes are held twice a week in the evening and subjects are taught in the regional languages as well.

50%of the total seats in IITs are reserved for SC, 5% for ST candidates. Among the other facilities is the exemption from payment of tuition fee and hostel rent. There is a provision for award of scholarship of Rupees one hundred and fifty per month to cover the board expenses. The scholarships are tenable for a year from the date of admission and are renewable every year. The work load for these students has been further reduced from five courses to four or even three in order to help them improve their performance index wherever necessary. They are however allowed to carry forward the load to the next year.

New scales for principals

The Uttar Pradesh Government has announced new pay scales retrospectively with effect from January, 1973 for all college principals. The principals of postgraduate colleges having more than one thousand students and six subjects will be entitled to pay in the scale of Rs. 1500-2500. The principals of degree colleges having more than two hundred students will be placed in the scale of Rs. 1200-1900.

Association of Indian Universities

Sports Calendar for 1977-78

Sl. No.	*Game*	*Organising University*	*Zone*	*August*	*September*	*October*	*November*	*December*	*January*
Games on two Zone Basis									
*1.	Basketball (Women)	Punjabi Jiwaji	NZ & AIF SZ	—	21st (C. E.)	Last week and	First week (C. I. Z. 3rd)	—	—
*2.	Kabaddi (Men)	Burdwan Shivaji	NZ SZ & AIF	—	21st (C. E.)	Last week (C.I.Z. 27th)	—	—	—
3.	Table Tennis (Men and Women)	Dibrugarh Karnatak	NZ SZ & AIF	16th (C.E.)	2nd fortnight (C.F. 30th)	—	—	—	—
4.	Tennis (Men)	IIT Kanpur Sri Venkateswara	NZ SZ & AIF	—	—	—	1st (C.E.)	2nd-15th (14th C.F.)	—
*5.	Volleyball (Women)	Ravishankar Madras	NZ SZ & AIF	—	—	20th(C.E.)	20th-30th (C.I.Z. 27th)	—	—
Games on four Zone Basis:									
1.	Badminton (Men and Women)	Kurukshetra IIT Kharagpur Nagpur Jabalpur	NZ EZ SZ & AIF WZ	—	1st (C.E.)	1st fortnight (C.I.Z. 12th)	—	—	—
*2.	Basketball (Men)	Rajasthan Berhampur Madurai Baroda	NZ & AIF EZ SZ WZ	—	—	22nd (C.E.)	Last week and	first week (C.I.Z. Ist)	—
3.	Cricket (Men)	Aligarh Muslim Patna Kakatiya Vacant	NZ & AIF EZ SZ WZ	—	—	—	19th (C.E.)	From 20th upto 20th (C.I.Z. 12th)	
*4.	Football	Allahabad Utkal Kerala Agril. Jodhpur	NZ & AIF EZ SZ WZ	—	15th (C.E.)	2nd fortnight (C.I.Z. 22nd)	—	—	—
*5.	Hockey (Men)	Guru Nanak Dev Saugar Osmania Udaipur	NZ & AIF EZ SZ WZ	—	—	—	—	1st (C.E.)	Ist fortnight (C.I.Z. 8th)
*6.	Volleyball (Men)	Jammu B. H. U. Mysore Marathwada Agr.	NZ EZ SZ & AIF WZ	—	22nd (C.E.)	Last week and	1st week (C. I.Z. 1st)	—	—

*1. These Tournaments shall be played on league basis from the Zonal Semi-final Stage.
2. Inter-Zonals of the Tournaments in the games of Baskerball (Women), Kabaddi (Men) and Volleyball (Women), run on two zone basis shall be played on league basis.
3. Inter-zonals of the Tournaments in the games of Basketball (Men), Football, Hockey (Men) and Volleyball (Men), run on four-zone basis shall be played on league-cum-knock out basis.

Games on All-India Basis

Sl. No.	*Game*	*Organising University*	*August*	*Sept.*	*October*	*November*	*December*	*January*	*Remarks*
1	2	3	4	5	6	7	8	9	10
1.	Athletics (Men & Women)	Vikram	—	—	—	—	7th (C.E.) 28th (C)	—	Detailed entries by 17th December
2.	Ball Badminton (Men)	Vacant	—	—	—	—	21st (C.E.)	21st(C)	—
3.	Ball Badminton (Women)	Vacant	—	—	—	—	21st (C.E.)	21st(C)	—
4.	Boxing	Guru Nanak Dev	—	—	—	—	17th(C.E.)	8th(C)	Detailed entries by 30th Dec.
5.	Chess	Lucknow	2nd (C.E.)	Ist(C)	—	—	—	—	—
6.	Cricket (Women)	Rohilkhand	—	—	21st (C.E.)	20th (C)	—	—	—
7.	Cycling	Punjabi	—	—	—	—	18th(C.E.)	9th(C)	—
8.	Gymnastics (M & W) and Malkhambh	Bundelkhand	—	—	—	23rd (C.E.)	15th (C)	—	Detailed entries by 5th December
*9.	Hockey (Women)	Avadh	—	—	—	10th (C.E.)	10th (C)	—	—
*10.	Kabaddi (Women)	Vacant	—	21st (C.E.)	22nd (C)	—	—	—	—

(*Contd. on Page* 286)

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathemetics

1. Dasgupta, Asok. The compatible topologies of groups and those of their lattices of subgroups. University of Calcutta.
2. Dasgupta, S. P. Finite element solutions to some problems in the dynamics of footings. IIT, Kanpur.
3. Jinnapa, Shetty Dharanappa. Topics in differential Geometry: A contribution to study of vectorfields. Karnatak University.
4. Kulkarni, Krishnaji Hanamantarao. Some topics in graph theory. Karnatak University.
5. Mahajan, Ghisilal Balaji. Special functions and applications. Awadhesh Pratap Singh University.
6. Mohapatro Premalata. Quasi matrix methods of summation. Sambalpur University.
7. Patil, Kalgounda Ramgounda. Some problems connected with higher transcentental functions. Shivaji University.

Physics

1. Ansari, M. S. Vibrational and rotational analysis of electronic transitions in some diatomic molecules. IIT, Kanpur.
2. Das, Asitranjan. Transport properties of some crystallien and amorphous semiconductor. University of Calcutta.
3. Datta, Ratnadeepa. Study of anharmonic vibrations of samll linear chains. University of Delhi.
4. Ghosh, Pradipnarayan. Intermolecular forces and vibrations of molecular systems in condensed phases. University of Calcutta.
5. Iroji, Patil Chandrakant. Investigation on microstructures of rapidly solidified aluminium-zirconium alloys, electric field gradients at aluminium and the energy levels of $^{10}{}_{b}$ nucleo. Shivaji University.
6. Jain, V. K. Electron paramagentic resonance studies of M_n^{2+} and VO^{2+} in single crystals. IIT, Kanpur.
7. Khanra, Badal Chandra. Studies on some aspects of the mixed state of type II super conductors. Aligarh Muslim University.
8. Krishna Rao, Narayanachetti. M4 transitions in atomic nuclei and the migdel interaction. Andhra University.
9. Mathur, Om Narain. Studies in electrical and photoconduction mechanism of organic molecular crystals of pyrene picrate with special reference to presistent internal polarisation effect. Awadhesh Pratap Singh University.
10. Minakshi Devi. Studies on the ionospheric absorption of radio waves at Gauhati. Gauhati University.
11. Ray, Haripada. Studies in closed and open shell atomic systems: Polarizabilities and allied problems. University of Calcutta.
12. Sharma, Krishna Chandra. Luminescence characteristics of CaS:Sm phosphors with special reference to halide fluxes. University of Saugar.
13. Sharma, Madan Lal. Study of the life-time of (Z.7) hypernuclet from non-mesic de-excitations. University of Jammu.
14. Sharma, Subodh Kumar. Studies on the application of eikonal approximation in scattering problems. University of Calcutta.
15. Shrivastava, Chandra Prakash. Plasma diagonstics by sonic probe. Ravishankar University.
16. Som, Jnanendranath. Investigat]ons of the vibration spectra and rotational isomerism in some organic aliphatic molecules. University of Calcutta.
17. Soudagar, Mohiddin Kasim. Detrmination of constants of molecular vibrations of betn xy_2 type structures by GFP technique and thermoluminescence of Ce and Sm activated (Bal: Sr) So_4 (Bal: Cd) So_4 and (Ba: Sr) So_4 phosphors. Shivaji University.
18. Tiwari, Tej Narayan G. The 8,8. model of ckiral summery breaking and its applications in particle physics. Sambalpur University.

Chemistry

1. B. C. Singh. Studies on polymerisation and oxidaton reactions involving Cerium (IV) and Vanadium (V) ions. Utkal University.
2. Barsode. Chandralekha Digambar. Studies on organotin (IV) substituted oxinates. University of Poona.
3. Bhattacharyya, Dipak. Studies in the metal chelates of substituted heterocyclic bases. University of Calcutta.
4. Bhosale, Suresh Bharmajirao. Biochemical studies in germinating seeds (cicer arietinum and linum usitatissimum). University of Poona.
5. Bummerkar, Kasdan Balaji. Studies on hydroxyamidines and their analytical applications. Ravishankar University.
6. Chakarvarty, Kalindra Nath. Polyphenols and their role in resistance of plant tissues to infection. Gauhati University.
7. Chaudhri, Subhankar. Nitgrogenous heterocycles as possible trypancoidal agents. University of Calcutta.
8. Dalai, Purna Chandra. Annealing studies on some complex compounds. Utkal University.
9. Deb, Kanak Kanti. Hydroxymidines as analytical reagents. Ravishankar University.
10. Divakar, Kikkeri Jagannath. Synthesis of terpenoids having alphabeta unsaturated ketone, lactone and related functional groups. University of Poona.
11. Eswarappachary, Teiki. Studies on heterocyclic sulphur compounds. Sambalpur University.
12. Ganesh, K. N. A study of the configuration and conformation of some oxygenated cedrane derivatives. University of Delhi.
13. Ghosh, Dipankar. Studies on pozzolanic properties of some Indian fly ashes. University of Calcutta.
14. Hiremath, Andanayya Chanamallayya. A study of medal complexes. Karnatak University.
15. Jain, Parbodh. Transition metal complexes of schiff bases sulphadiazines salicyladimines. Indore University.
16. Joshi, Pratibha Prahlad. Oxyanionic solids by low energy ions and electrons. University of Poona.
17. Kalsi, Puran Chand. Thermal decomposition of metal carboxylates. University of Jammu.
18. Kothari, Suresh. Studies on development of digestive tract and its histo-chemistry and enzymology in heteropneustes fossilis (bloch). Vikram University.
19. Mathur, Krishan Kumar. Some advances in the chemistry of can juice clarification. Kanpur University.
20. Mazumdar, Uma. Preparation of model esters related to lac resin and stereochemistry of their formation. University of Delhi
21. Misra, Pravati. Influence of structural changes on reaction rates. Utkal University.
22. Mukherjee, Krishna. Studies of the proteinase inhibitors helminth parasites. Kanpur University.
23. Mukhopadhyay, Raghupati. Synthesis of possible antiamebic agents. University of Calcutta.
24. Naryan Kailsh. Studies on protein synthesis during grain development pulses. Kanpur University.
25. Padmaja, P. Studies on potassium in rice and rice soils. Orissa University of Agriculture and Technology.
26. Patil, B. K. Studies on rare earth complexes. Marathwada University.
27. Pattanayak, Manomohan. Study of metal ions by paper electrophoresis. University of Calcutta.
28. Radhika Singh. A study of polyphenolic components of some Indian medicinal plants. University of Delhi.
29. Ramanujam, Srinivasa. Structure-reactivity studies in the oxidaton of alcohols by cerium (IV).
30. Saxena, Brij Bhushan. Kinnetic studies on the oxidation of some substituted benzbydrols by vanadium (v). University of Udaipur.

31. **Sharma, Rajendra Kumar.** Synthesis and characterization of organometallic compounds of metals with cyclopentadiene and allied ligands. University of Delhi.
32. Sharma, Surindra Nath. Photo induced functionalization of saturated hydrocarbons. University of Poona.
33. Shukla, Shivkumar Purushottam. Oxidation and other studies in steriods and related compounds. University of Poona.
34. Siddarama, T. K. Studies on pesticide microflora interactions in flooded soil. Orissa University of Agriculture and Technology.
35. Someswara Rao, Nittals. Spectroscopic studies of charge transfer and hydrozen bonded complexes. Andhra University.
36. Soundar Rajan, S. C. Analytical chemistry of gold. Sri Venkateswara University.
37. Tulasi Das, B. Studies on (i) heterocyclic compounds and some of their useful properties (ii) come oils. Utkal University.
38. Verma, Prakash Chander. Hydrexamic acids and their metal complexes. Vikram University.
39. Wij, Meena . Chemical investigation of some Indian plants having medicinal or physiological interest. University of Delhi.

Earth Sciences

1. Rao K. B. Origin and evolution of sand dunes and associated sand deposits of Ganjam Coast, Orissa, India. Utkal University.

Engineering & Technology

1. Bejoy Kumar. On the efficiency of production line. University of Burdwan.
2. Kurma Rao, P.S.V. Partial evaporation rates of liquid patches on a hot plate under film boiling conditions. Andhra University.
3. Mohanty, Chitralekha. A study of the relation between the two measures of meaning. I. I. T., Kharagpur.
4. Pathak, Devendra Kumar. Studies of nature and properties of sunflower pectin. Kanpur University.
5. Veerabhadra Rao, Kollipara. Studies of hold-up and gas liquid mass transfer in gas liquid fluidized beds. Andhra University.

BIOLOGICAL SCIENCES

Biochemistry

1. Chaudhuri, Kanakendu. Protein and RNA biosynthesis in inaliguant cells in relation to antitumour drugs. University of Calcutta.

Physiology

1. Chaudhuri, Samares. Experimental studies on structural and functional changes in intestine exposed to ionizing radiation and effect of cold on such changes. University of Calcutta.
2. Sahu, Amalendubikas. Experimental studies on induced prostatic neoplasms. University of Calcutta.
3. Sen, Kakali. Studies on some aspect of estrogen induced luteolysis in pregnant rats. University of Calcutta.

Marine Biology

1. Madhupratap, M. Studies on the Cology of Zoo plankton of Cochin back-waters. University of Cochin.
2. Unnithan, R. Viswanathan. Studies on monogenetic trematodes. University of Cochin.

Microbiology

1. Badkatte, Narayan Vishnu. Phosphorus solublising ability of microorganisms isolated from different agroclimatic zones of Maharashtra State. University of Poona.
2. Roy, Prodyot Kumar . Studies on metabolism of hydrocarbons by mycroorganisms. Gauhati University.

Botany

1. Chaurasia, Laxmi, Chandra. Cytological and mitotic effect of some plant fertilizers. University of Saugar.
2. Mishra, Gayatri Prasad. Studies on the gene action of biometrial traits in some of the wheat, (Triticum aestivum (L) varieties. Awadhesh Pratap Singh University.
3. Nandan, Asok Kumar. Studies on the chemical nature and physiological action on the phytotoxic substances of the root exudates of some common crops and wees. University of Calcutta.
4. Pande, Ram Chandra. Influence of various kinds of mulches on the growth yield and yield components of onion under different level of irrigation and nitrogen. Awadhesh Pratap Singh University.
5. Sharma, Saroj. Ecological studies on the herb layer of hills at Udaipur: South Rajasthan. University of Udaipur.
6. Vyas, Kusum L. Ecology of some varieties of Corlanbrue sativum, (Linn.)). Saurashtra University.
7. Wadje, S. S. Studies in ieromycology of cotton. Marathwada University.

Zoology

1. Bandelu, Rajeev Shantaram. Studies on parastic hymenoptera of Marathwada with special reference to faimly ichneumonidae. Marathwada University.
2. Bhattacharyya, Bhabani Rani. Studies on some aspects of bionomics of Lobella, Lobella Maxillaris (Yosil, 1966) (Collembola: insects). University of Burdwan.
3. Chattopadhyay, Keya. Some aspects of digestive physiology of a cichlid fish, Tilapia mossambica (Peters) with special reference to gut bacteria. University of Calcutta.
4. Chattopadhyay, Sankarnath. Gene physiological studies on polytene chromosomes and dosage compensation in drosophila. University of Calcutta.
5. Das, Lakshmi Kanta. Studies on the life history of yellow mite, Hemitarsonemvs latus (Banks), its pestic effects on jute varieties and suitable control measures. University of Calcutta.
6. Dhabholkar, Arun Shankar. Hitochemical studies on the distribution of enzymes in the nervous system of invertibrates, vertibates and leprosy patients. University of Udaipur.
7. Hussaini, Zakir Hussain. Study on the biology, distribution, variation occurence and periodicity of anophelines of Baster District (Madhya Pradesh). Indore University.
8. Kulkarni, G. K. Studies on bio-chemical ecology of Indian leech poechilobdella. Marathwada University.
9. Mahapatra, N. K. Morphology, digestive and reproductive biology of free living, parastic and predaceous namatodes of rice soil. Utkal University.
10. Md. Altaf Hossain. Studies on some aspects of the biology of the sand lobster, thenus orientalis (Lund) decapoda. Scyllaridas from Andhra Coast. Andhra University.
11. Panigrahi. Studies on the connective tissue of the garden lizard calotes versicolar. Berhampur University.
12. Roy, Tamal Kanti. Comparative histoenzymological study of certain helminths parasitizing animals and plants and its corelation with their game-gogenetic studies. University of Udaipur.
13. Saha, Namita. Some aspects of digestive physiology of crab scalla serrata (Forskal) (Crustances: Decapoda). University of Calcutta.
14. Somvanshi, V. S. Biology of garra mullya (sykes) from Marathwada. Marathwada University.
15. Suresh Pratap Singh. Studies on the biology and morphology of Laccotrephes oriscus guer (Nepidae hemiptera). Awadhesh Pratap Singh University.
16. Vyas, Indra. Studies on the digestive and reproductory system of certain earth-worms. University of Udaipur.

Medical Sciences

1. Dwarka Pershad. Construction and standardization of a clinical test of memory in simple Hindi. P.G.I., Chandigarh.
2. Verma, Santosh Kumar. Construction and standardization of PGI health questionnaire N-2. P.G.I., Chandigarh.

Agriculture

1. Amarjeet Singh. Factors affecting adoption of high yielding varieties of wheat. Univrsity of Udaipur.
2. Aneja, Ram Prakash. Development of a vegetable protein based on tea whitener as a milk substitute for the low income consumers. Gujrarat Agricultural University.
3. Bandyopadhyay, Sabita. Study on morphogenesis in nigella tissue culture. University of Calcutta.
4. Bawaskar, V. S. The effect of the application of penicillin mycellum residue (PMR) on soil properties and plant growth. Mahatma Phule Krishi Vidyapeeth.
5. Gordhanbhai Patel, Nityanandkumar. The bionomics and control measures of tobacco bug nesidiocoris tenuis reuter (miridae: hemiptera). Gujarat Agricultural University.
6. Gupta, Tilak Raj. Studies on the mutagen induced polygenic variability in rice (Oryza sativa L.) Punjab Agricultural University.
7. Gurdip Singh. Further studies on the field behaviour of maize borer, chilo parellus (swinhee) (Pyralidae: lepidoptera). Punjab Agricultural University.

8. Gurpal Singh. Studies on phonotypic variability in F1 hybrinds of almond and slch (poach-a lmond hybrid). Punjab Agricultural University.

9. Harmonhan Kumar. Studies on the association of root knot nomatodo and pathogenic fungus on odra. Punjab Agricultural University.

10. Kaul, Chiman Lal. Effect of various weathering agencies on the dissipation or certain insecticides. University of Udaipur.

11. Het Ram. Effect of different water table depths, sclinity and composition of ground water on physico-chemical characteristics of soil, growth and yield of maize and wheat crops. Haryana Agricultural University.

12. Mandal, Rames Chandra. Interaction of calcium carbonate with sodium in sodic soils and possibilities of its application in reclamation of such soils. University of Calcutta.

13. Megh Singh. Response of crops to zinc and copper fertilization at different phosphoros levels in loamy sand soil and their status in Rajasthan soils. University of Udaipur.

14. Parmar, Kadvabhai Siddhibhai. Studes of problems in producing hybrid rice and mutational ractification of some on desirable traits of three tall popular varieties of rice (oryza sativa). Gujarat Agricultural University.

15. Yadava, Ramkrishna Singh. Studies on leaf spst disease of bajra (pennisatum typhoides stapf, and hubbard) caused by pyricularia, penniseti, Prasad and Goyal. University of Udaipur.

16. Yadave, Jagmal Singh. Biochemical and cytogenetical investigations in spices and hybrids of *brassica*. Haryana Agricultural University.

Horticulture

1. Indra Sen Singh. Natural evolution of styhlene in grapevine and its manipulation by cultural operations and growth regulators: Haryana Agricultural University.

2. Kushwaha, Pravir Kumar Singh. Effect of nitrogen phosphorus, potassium and some micro-nutrients on the growth, quality and yield of flower in essential oil bearing 'Haldighati Rose' (rosa damascena mill). University of Udaipur.

3. Sharma, Radha Raman. Genetical studies in watermelon: Citrullus, lanatus thumb, manf. University of Udaipur.

Veterinary Science

1. Bhatnagar, Prem Kumar. Some studies on the biology and chemtherapy of Oesophagostomum columbianum (curtice, 1980) stossich, 1899 in sheep. Haryana Agricultural University.

2. Gera, Krishnan Lal. Experimental and clinical studies on urolithiasis in bovines. Haryana Agricultural University.

3. Rama Kumar. Study of some immobilization techniques in the repair of long bono fractures in bovines with special reference to the effect of some osteogenic agents. Punjab Agricultural University.

Additions to A.I.U. Library

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Page, Colin Flood, and Yates, Mary, ed. *Prospects for higher education.* London, Society for Research into Higher Education, 1975. 102P.

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Unesco. *Systems approach to teaching and learning: A guide for educators in developing countries.* Paris, Author. 1975. 146P.

Unesco and IAU. *Lifelong education and its consequences for the use of university resources.* Paris, Author, 1975. 175P.

Wolask, David,. *Experience-centered curriculum: Excerises in perception, communication and action.* Paris, Unesco, 1975. 52P.

CLASSIFIED ADVERTISEMENTS

UTKAL UNIVERSITY

Advertisement No. Estt. 1/7053/77 **Dated 30.4.1977**

Applications are invited in the prescribed form for the following teaching posts in the University service on or before 31.5.1977

Sl. No.	*Department*	*Post*	*Specialisation*
1.	Political Science	Professor Lecturers	X
2.	English	Reader	Modern literature in English language.
3.	Oriya	Reader	Modern Oriya literature.
4.	History	Reader	The candidate should preferbly have studied one of the following subjects as his special paper at the M.A. stage:— (a) Medieval Indian History. (b) Modern Indian History. (c) Regional History & Archaeology (Orissa).
		Lecturer (temporary) leave vacancy.	X
6.	Geology	Reader (temporary) leave vacancy.	X
7.	Chemistry	Lecturers	For one of the posts specialisation in Organic Chemistry will be preferred
8.	Analytical and Applied Economics	Reader	Development Economics
		Lecturers including one temporary Lect. in Statistics.	X
9	Labour Welfare	Reader	X
		Lecturer (temporary leave vacancy)	Labour Welfare or Personnel Management.
10.	Sociology	Reader	X
		Lecturer (temporary)	X
11.	Botany	Lecturer (temporary)	X
12.	Zoology	Reader	
13.	Anthropology	Lecturers	in Social Anthropology especially those who have training in linguistic and Psychological Anthropology and specialisation in Pre-History, especially those who have training in Archaeological Excavation. will be preferred.
14.	Mathematics	Reader	Magnetohydrodynamics or Biomathematics.
15.	P.G.Dept. of Law	Reader	X
		Lecturer	X
16.	Bhubaneswar Law College.	Principal	X
17.	M. S. Law college, Cuttack.	Professor-cum-Principal.	X

Scale of Pay

Professor: Rs. 1500-60-1800-100-2000-125/2-2500/-. (including Prof.-cum-Principal, M.S. Law College)

Reader: Rs. 1200-50-1300-60-1900/-, (including Principal, Bhubaneswar Law College)

Lecturer: Rs. 700-40-1100-50-1600.

Essential Qualifications:

Age of superannaurion—60 years.

(a) Professor: The Professor shall—

(i) be a scholar of eminence;

(ii) possess a good academic record with a First or High Second Class Master's Degree in the subject;

(iii) have a Doctorate Degree or published work of equivalent standard;

(iv) have independent published research work of high standard in addition to the published work mentioned in (ii) above;

(v) be engaged in active research and have experience of guiding research of a considerable period as evidenced by successful supervision of doctoral research;

(vi) be a teacher for ten years out of which at least seven years should have been spent in regular teaching in Post-Graduate/Hons. classes.

(b) Principal-cum-Professor of Law:

(i) High academic qualification;

(ii) High research qualification preferably a doctorate;

(iii) Capacity for conducting and guiding a research work and undertaking Post-Graduate teaching in Law;

(iv) Shall have ten years teaching and/or professional experience at the bar at a High Court or a Court of higher level out of which at least 5 years should have been in teaching.

(c) Reader: The Reader shall have:

(i) A good academic record with a First or a High Second Class degree in the subject. For the post of Reader in Labour Welfare a good academic record with a First or Higher M.A. degree in industrial relation business or personnel management, labour/or social welfare/work and commerce or any other social science;

(ii) A Doctorate degree or published work of equivalent standard;

(iii) Independent published research work (in addition to the published work mentioned in (ii) above);

(iv) Teaching and research experience for eight years out of which at least five years should have been spent in regular teaching in Post-graduate/Hons. classes. Capacity to guide research shall be regarded as an additional qualification.

(d) Principal, Bhubaneswar Law College:

(i) First or Second class Master's degree in Law / or LL.B. with five years experience at Bar:

(ii) Five years teaching experience in Law College or a University Dept. of Law.

Desirable:

(iii) Ph.D. in Law or equivalent published work;

(iv) Administrative experience for a period of 3 years.

P.G. Dept. of Law:

Reader: The Reader shall have :

(i) A good academic record with a first or a high Second Class Master's degree in the subject;

(ii) A doctorate degree or published work of high standard;

(iii) Shall have 8 years teaching and/or professional experience at the Bar at Law High Court or a court of Higher level out of which at least 3 years should have been in teaching.

P.G. Deptt of Law:

Lecturer: The Lecturer shall have :

(i) A good academic record with a First or High Second Class Master's degree in the subject;

Desirable:

(ii) Two years experience in teaching or/and M.Phil or M.Litt. or other pre-Doctoral degree. Two years experience in teaching and / or LL.M. or Ph.D. Degree or experience at the Bar. Candidates with Ph.D. in the subject will be preferred.

M.S. Law College:

Lecturer:

(i) Law graduate with Second Class LL.B. with 5 years practice at the Bar; or

(ii) Law graduate with First class LL.B. with 3 years practice at the Bar; or

(iii) LL.M. (50% of marks)

Lecturer:

The Lecturer shall have a good academic record with First or High Second Class Master's degree in the subject.

Desirable: Two years experience in teaching or/and M.Phil. or M.Litt. or pre-Doctoral degree. Candidates with a Ph.D. in the subject will be preferred.

In case candidates without Ph.D. degree are appointed, they shall be required to acquire the Ph.D. Degree within 5 years.

Prescribed application forms and particulars of qualifications etc. can be had from the Registrar, Utkal University in person on payment of Rs. 7/- (Rupees seven only) or by post on receipt of a crossed Indian Postal Order for Rs. 8.50 payable to the Registrar, Utkal University, Vanivihar, Bhubaneswar-4. Money orders are not acceptable.

Candidates in Govt. service, if selected for the posts for which they have applied would be asked to pay pension contribution and leave salary in case they join the Univeristy service on foreign service terms and conditions.

The University reserves to itself the right to decide the number of posts to be filled.

S. SAHU
REGISTRAR

KURUKSHETRA UNIVERSITY KURUKSHETRA

Advt. No. 5/77

Applications are invited for the post of Reader in Mathematics in the grade of Rs. 1200-50-1300-60-1900.

Qualifications:

Essential:

(i) A 1st or high 2nd Class Master's Degree of an Indian University or an equivalent qualification of a foreign University in Mathematics, with consistently good academic record;

(ii) Either a Research Degree of a Doctorate Standard or published work of high standard;

(iii) About 5 years' experience of teaching at a University or a College and some experience of guiding research, relaxable in very special cases.

Field of Specialization:

The Candidates must have specialized in Numerical Analysis/Computer Software.

Usual allowances, P. F. etc. admissible as per University Rules. Knowledge of Hindi desirable. The candidates who have already applied for the above post in response to our advertisement No. 3/77 need not apply again.

Applications (through proper channel for those in employment) on the prescribed **form obtainable** from the Assistant Registrar (Estt), alongwith attested copies of certificates / testimonials and accompanied by Crossed Indian Postal Orders for Rs. 7.50 drawn in favour of the Registrar, Kurukshetra University, Kurukshetra, and payable at the University Post Office should reach the Assistant Registrar (Estt) on or before **21.5.1977**. Ex-servicemen are exempted from application fee.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY DELHI

Hauz Khas, New Delhi-29

Advertisement No. 4/77

Applications are invited for appointment to various academic and other positions in the various Departments and Research Projects of the Indian Institute of Technology, Delhi:

Posts and Scale of Pay

1. Professor: Rs. 1500-60-1800-100-2000-125/2-2500.
2. Assistant Professor: Rs. 1200-50-1300-60-1900.
3. Lecturer : Rs. 700-40-1100-50-1600.
4. Research Associate: Consolidated amount between Rs. 700.- to 1100/- p.m.
5. Senior Research Assistant: Rs. 550-25-750-EB-30-900.
6. Research Assistant: Rs. 425-15-500-EB-15-560-20-700.

Candidates selected would be offered position depending upon their academic background and relevant teaching/ research / professional experience. Higher initial pay will be admissible to specially qualified and deserving candidates.

Posts are permanent as well as temporary. Appointments will, however, be made either on contract basis for a period not exceeding five years in the first instance or on temporary basis or on deputation on foreign service terms. Appointees will have option to elect any of two schemes viz Contributory Provident Fund-cum-Gratuity or General Provident Fund-cum-Pension-cum-Gratuity operating at the Institute, on completion of one year's service. The posts also carry allowances as per rules, which at present correspond to those admissible to Central Government employees. Age of retirement is 60 years. Candidates called for interview will be paid second class railway fare from the place of their duty to Delhi and back by the shortest route.

Indian candidates abroad, if selected for appointment, are allowed travel grant contribution limited upto a maximum of economy class airfare for self and family provided they undertake to serve the Institute for a period of 3 years, after joining.

Qualifications:

Professor: Good Master's Degree/ Doctorate Degree in appropriate field with minimum 7 to 10 years' distinguished experience in teaching / research in Institution of University Standard at Post-graduate level. Specialised knowledge in one or more specified fields with experience in guiding research. Professional/ Scientific work of outstanding merit and Doctorate Degree would be preferred.

Assistant Professor: Good Master's Degree / Doctorate Degree in appropriate field with minimum 5 years' experience in teaching / research in Institution of University Standard. The experience must include research / industrial experience of not less than two years. Specialised knowledge in one or more specified field / subject with outstanding teaching / research experience and Doctorate Degree or published work of equal standard would be preferred.

Lecturer: Good Master's Degree in appropriate field with two years' research/ industrial experience in any Institution of University Standard / Establishment of repute. Doctorate Degree or published work of equal standard preferred.

Research Associate—Essential: Ph.D in related discipline. Experience in research / development or in Industry and publications desirable.

Senior Research Assistant / Research Assistant : First Class B. Tech. Degree/ First Class Master's Degree in Science in related discipline. Final year Students with outstanding academic record may also apply. Their selection / appointment will be subject to getting a First Class Degree.

I. **Department of Applied Mechanics:** Professor, Assistant Professor/ Lecturer.

Field of specialisation—Professor: **(1) Solid Mechanics:** Theoretical and Experimental Stress Analysis; Large permanent deformations, Plasticity.

(2) Fluid Mechanics: Aerodynamics, Turbulence, Boundary Layer Flows, Two-phase flows, bio-fluid Mechanics, Non-Newtonian flows, Fluid Machinery, Hyderaulic Engineering. **(3) Design Engineering and Systems Planning.**

Assistant Professor / Lecturer : (1) Dynamics of Large deformations with experience in dynamic testing, Analysis and synthesis of mechanisms. (2) Turbulent Flows, Internal and External Flows, Flow through Fluid-Mechanical Equipment, Two-phase and Non-Newtonian Flows, Boundary layer Flows. (3) Design Engineering and systems planning. (4) Physical metallurgy. (5) Bio-mechanics.

Those who applied for post of Professor against Advertisement

No. 4/75 need not apply again, but may send their updated biodata.

II. **Department of Chemical Engineering**
Professor, Assistant Professor/ Lecturer.

Field of specialisation—Professor: (1) Process Engineering / Chemical Plant Design. (2) Process Dynamics and Control.

Assistant Professor / Lecturer: (1)Process Dynamics and Control. (2) Design of Chemical Process Equipment. (3) Chemical Thermodynamics.

III. **Department of Civil Engineering:**
Professor, Assistant Professor/ Lecturer.

Field of specialisation: (1) Water Resources Engineering—Planning, Design and Management of Water Resources. (2) Transportation and Surveying. (3) Environmental Engineering. (4) Soil Mechanics with special interest in rock mechanics. (5) Structures.

Temporary positions also available in the Curriculum Development Cell attached to the Department. For these positions persons with specialisation in any branch of Civil Engineering will be considered but preference will be given to those who have made contributions to Curriculum Development through drafting and formulation of new syllabi, development of laboratory experiments and manuals and or through writing of text books.

Those who applied for the post of Professor in response to Advertisement Nos. 4/75 and 5/76 need not apply again but may send their updated biodata.

IV. **Department of Electrical Engineering:**
Professor, Assistant Professor/ Lecturer, Research Associate.

Field of specialisation—Professor: (1) Process Control (2) Electrical communication.

Assistant Professor / Lecturer: (1) Computer Technology. (2) Systems Control & Instrumentation. (3) Electronics Circuits. (4) Electrical Communications. (5) Power Electronics.

Research Associate: (1) Computer Technology (2) Integrated Electronics.

Temporary positions at Professor/ Assistant Professor level are also available in the Curriculum Development Cell attached to the Department. For this position persons with specialisation in any branch of Electrical Engineering will be considered but preference will be given to those who have made contributions to Curriculum Development through drafting and formulation of new syllabi, development of laboratory experiments and manuals and or through writing of text books.

V. **Department of Mechanical Engineering:**
Professor, Assistant Professor / Lecturer.

Senior Research Assistant / Research Assistant—For Projects under interdisciplinary Science & Technology Programmes in (1) Design—Mechanical and Instrumentation (2) Ecology—Air pollution studies.

Field of specialisation—Professor: (1) Industrial Engineering (2) Production Engineering. (3) Mechanical Design & Analysis including Industrial Tribology.

Assistant Professor / Lecturer: (1) Metal Forming. (2) Automation. (3) Thermal Power Plant Engineering / Turbo Machines. (4) Combustion, (5) Heat Transfer (6) Machine Design. (7) Industrial Tribology. (8) Industrial Engineering. (9) Welding and Foundary.

For Senior Research Assistant / Research Assistant candidates with (1) First Class Bachelor's Degree in Electronics / Electrical / Mechanical Engineering or First Class Master's Degree in Physics with experience / specialisation in Instrumentation / Design / Computer Programming / Manufacturing techniques and (2) First Class Bachelor's Degree in Engineering with specialisation in I. C. Engines/ Fuels and Combustion or Automobile / Mechanical / Chemical Engineering or First Class Master's Degree in Chemistry / Physics / Mathematics with specialisation / experience in mathematical modelling / instrumentation / analytical chemistry will be considered.

Those who applied for post of Professor against advertisement No. 5/75 need not apply again, but may send their updated biodata.

VI. **Department of Textile Technology:**
Professor, Assistant Professor/ Lecturer.

Field of specialisation—Professor: (1) **Textile Technology/Engineering** (i) Structural Mechanics of Yarns and Fabrics (ii) Textile manufacture (iii) Theory and Design of Textile Machinery. (2) **Textile Chemistry:** (i) Chemical modification of fibres, (ii) Finishing of natural and manmade fibre fabrics (iii) Physical chemistry of dyeing (iv) Photo chemistry of dyes and fibres.

Assistant Professor / Lecturer: (1) **Textile Technology / Engineeeing:** (i) Weaving Knitting, (ii) Structure and Geometry of Fabrics (iii) Mechanics of Textile Processes (iv) Textile Machine Design. (2) **Textile Chemistry & Fibre Science :** (i) Process Engineering of Man-made Fibres (ii) Structure and Properties of Polymers and Fibres (iii) Finishing and Dyeing of Natural and Man-made Fibres. Candidates with First Class Master's Degree in Chemistry or Physics/ M.Tech. in Chemical or Mechanical Engineering with requisite experience or interest in appropriate fields are also eligible.

VII. **Department of Mathematics:**
Professor, Assistant Professor/ Lecturer.

Field of specialisation: (1) Numerical Analysis and Computer Science (2) Statistics and Operational Research (3) Applied Mathematics/ Pure Mathematics.

VIII. **Department of Physics:**
Professor, Assistant Professor / Lecturer.

Field of specialisation—Professor: (1) Applied Optics (2) Solid State Physics / Electronics.

Assistant Professor / Lecturer : (1) Applied Optics (2) Solid State Physics / Electronics (3) Plasma Physics.

IX. **Department of Chemistry**
Professor, Assistant Professor/ Lecturer.

Field of specialisation—Professor (1) Organic Chemistry (2) Inorganic Chemistry.

Assistant Professor/Lecturer (1) Biochemistry (2) Physical Chemistry (3) Organic Chemistry (4) Polymer Chemistry.

X. **Department of Humanities & Social Sciences**
Professor, Assistant Professor/Lecturer.

Field of specialisation-Professor (1) Economics (2) Psychology (3) Political Science (4) English.

Assistant Professor/Lecturer (1) Applied linguistics with reference to teaching of English as second language (2) Modern English literature (3) Political Processes and Political behaviour (4) Psychology.

XI. **School of Bio-Engineering & Bio-Sciences**
Professor, Assistant Professor/ Lecturer.

Field of specialisation (1) Microbiological Engineering (2) Enzymology (3) Bio-physics.

XII. **School of Systems and Management Studies**
Professor, Assistant Professor/ Lecturer/Research Associate, Senior Research Assistant, Research Assistant.

Field of specialisation -Professor (1) Production Management (2) Personnel & human resources management.

Assistant Professor/Lecturer (1) Systems Analysis and Simulation.

Research Associate/Research Assistant (1) Transportation (2) Water Resources (3) Urban Building Systems (4) Resource Engineering.

XIII. **School of Materials science and Technology.**
Assistant Professor /Lecturer, Research Associate, Senior Research Assistant.

Field of specialisation-Assistant Professor/Lecturer (1) **Polymer Science & Materials**-Synthesis of monomers and Polymers. (2) **Solid State Electronic Materials**-(i) Thin film technology, infrared and electro-optical, acousto-electric devices (ii) Crystal growth and characterisation of materials (iii) Solid State Electronic Devices.

Candidates with first class M.Sc. in Chemistry/Physics or M.Tech. in an engineering discipline with relevant experience in the appropriate field are also eligible to apply.

Research Associate Senior Research Assistant-All fields mentioned above and the following:—

(i) Polymer blends and composites (ii) Rheology, processing of polymers, Polymerisation kinetics and reacter design (iii) Plastic and rubber technology.

Those who applied in response to advertisement No. 5/76 need not apply again but may send their updated biodata.

XIV. Biochemical Engineering Reserach Centre

Assistant Professor/Lecturer. Research Associate/Senior Research Assistant

Field of specialisation-Assistant Professor/Lecturer (1) Microbiological Engineering (2) Enzyme Engineering and Technology (3) Food Engineering (4) Waste pollution abatement and waste treatment.

Research Associate/Senior Research Assistant (1) Bioenergy (2) Biofertilizer (3) Microbial and enzymatic process development.

XV. Computer Centre

Assistant Professor, Computer Programmer (Senior).

Field of specialisation-Assistant Professor-(1) Systems Simulation (2) Compiling Techniques (3) Computer Architecture (4) Computer aided Design (5) Computability (6) Theory of Programming Language (7) Switching and Automata Theory (8) Numerical Analysis and Operational Research.

Computer Programmer (Senior)-Qualifications-Master's Degree in Science/Engineering, preferably in Mathematics, Statistics/Electronics with three years' experience in developing software.

XVI. Indo-French Collaboration Programme in Bio-Mechanics & Related Areas

Assistant Professor/Lecturer/ Research Associate.

Field of specialisation-(i) Dynamical Meteorological (2) Physiological Fluid Dynamic and related areas.

Prescribed application forms may be obtained from the Registrar, Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110029 either in person or by sending a self-addressed stamped envelope (10 x 20 cm size) bearing posage stamps of 25p. Candidates from abroad may apply on plain paper giving an account of their academic and professional record, reprints and publications and names of at least two persons well acquainted with their professional work., Candidates selected for appointment will be required to join duty immediately or as soon as possible thereafter.

Reservation of posts exists for Scheduled Castes/Tribes candidates, as per Government of India rules, except for the excluded posts of Professor and Assistant Professor.

Last date of receipt of request for application form is **25.5.1977**. Last date of receipt of completed application forms together with an Indian Postal Order of the value of Rs. 7.50p (Rs. 1.87p for SC/ST candidates) for posts Sl. No. 1 to 3 and Rs. 3/-(Rs. 0.75 for SC/ST candidates) for posts at Serial Nos. 4, 5, & 6 is **31.5.1977** (15.6.1977 for candidates from abroad).

Persons employed in Govt./Semi-Govt. Organisations/Autonomous Bodies should submit the applications through their employer.

Sports Calendar

(*Contd. from page* 279)

1	2	3	4	5	6	7	8	9	10
*11.	Kho-Kho (Men)	Bombay	—	—	—	—	5th (C.E.)	4th (C)	—
*12.	Kho-Kho (Women)	Jabalpur	—	—	—	—	5th (C.E.)	4th (C)	—
13.	Rowing	Vacant	—	—	—	—	—	—	—
14.	Shooting	Vacant	—	—	—	20th (C.E.)	12th (C)	—	—
15.	Squash Rackets	Vacant	—	—	—	2nd (C.E.)	2nd (C)	—	—
16.	Swimming, Diving and Water-Polo (*M & W*)	Rajasthan	—	9th (C.E.)	1st week (C)	—	—	—	Detailed entries by 21st September
17.	Tennis (Women)	Vacant	—	—	—	2nd (C.E.)	2nd (C)	—	—
18.	Wt. Lifting and Best Physique	Vacant	—	—	—	29th (C.E)	21st (C)	—	Detailed entries by 11th Dec.
19.	Wrestling	Kurukshetra	—	—	7th (C.E.)	8th (C)	—	—	Detailed entries by 28th October

* In these tournaments, league basis shall apply from Semi-final stage.

C — Date of commencement of the tournaments run straightway on All-India Basis
CE — Last date of closing the entries.
CF — Date of commencement of the All-India Finals.
CIZ — Commencement of Inter-zonals.
NZ — North Zone
EZ — East Zone
SZ — South Zone
WZ — West Zone
AIF — All-India Finals.

BANARAS HINDU UNIVERSITY

Extension of time limit for applications

Reference B. H. U. Advertisement Nos. 18/19/20 of 1976/77 inviting applications for posts of Professors/Readers/Lecturers and others in various departments of the University, the date of submission of applications is now extended upto **25th May, 1977.**

The declaration columns 2(A) and (B) relating to association with the then banned organisations have been deleted from the revised application forms.

Those who have not applied earlier may do so on revised application forms obtainable from the Registrar (Selection Committee Section), B. H. U., Varanasi–221005.

Advertisement Nos. 18, 19, & 20 of 1976-77

Number of vacancies

Professors	*Readers*	*Lecturers*	*Others*
19	40	43	10

In the 'Essential qualifications No. 1 and No. 2' advertised for the posts of Professors and Readers may be read as under:

(1) A Doctorate Degree or published work of an equally high standard in the subject and

(2) Consistently good academic record with first or high second class Master's degree in the subject concerned or an equivalent degree of a foreign University.

ALL INDIA INSTITUTE OF SPEECH AND HEARING

Manasagangothri, Mysore-570006

Applications are invited in the prescribed form for the post of Lecturer in Speech Pathology in the Scale of Rs. 400-40-800-50-950 (likely to be revised to Rs. 700-40-1100-50-1300-Assessment-50-1600). In addition to Pay, the post carries usual allowances, CPF, Medical reimbursement facility, Leave Travel Concession, etc., as admissible to Central Government employees stationed at Mysore.

Qualification:

Essential: Master's Degree in Speech Pathology or Speech and Hearing, preferably with two years teaching experience.

Desirable: Scientific Publications, Ph.D.

Job requirement:

Teaching, Therapy, Research, Supervision of practical work and such other duties as may be entrusted from time to time.

Age limit: 35 years.

The post is reserved for SC/ST candidates. If no SC/ST candidates are available, it will be treated as unreserved and candidates from general pool will be selected.

Prescribed application form may be obtained from the Institute on payment of Re 1/- (0.50 Ps for SC/ST candidates) through Indian Postal Order by sending a self-addressed and stamped (0.40 Ps) envelope (9" x 4" size). The last date for receipt of applications is **28th May 1977.** However, Indian Nationals residing abroad may send the application before 6th June 1977. Candidates already in service must apply through proper channel. Canvassing in any form will be a disqualification. No interim enquiry will be attended to.

DIRECTOR

BERHAMPUR UNIVERSITY

Bhanja Bihar,
Berhampur-7, Ganjam

No. 2504/Admn/77 **dt. 23.4.77**

Advertisement

Applications are invited for the following teaching posts for the Post-Graduate departments of this university.

Sl. No.	*Subject*	*Name of the post*	*No. of vacancies*	*Field of specialization*
1.	Mathematics	Reader	1	Preferably in applied Mathematics
2.	Economics	Reader	1	Preferably in International Economics
3.	Physics	Reader	1	—
4.	Oriya	Reader	1	—
5.	Labour & Social Welfare	Reader	1	Personnel Management and Labour Welfare
		Lecturer (Temporary)	1	Labour & Social Welfare

Scale of pay:

Reader: Rs. 1200-50-1300-60-1900/-
Lecturer: Rs. 700-40-1100-50-1600/-

All posts carry usual allowances admissible under the rules in force in the University from time to time.

Qualification & Experience
Reader:

(i) The Reader shall have a good academic record with a first or high second class Master's degree in the subject.

(ii) A Doctorate degree.

(iii) Independent published research work (in addition to the published work mentioned in (ii) above.

(iv) Teaching and research experience for eight years out of which at least five years should have been spent in regular teaching in Post-Graduate/Honours classes.

Capacity to guide research shall be regarded as an additional qualification.

Lecturer

(i) A Doctor's degree or published work of an equally high standard,

(ii) Consistently good academic record with first or high second class (B+or 55%) Master's degree in a relevant subject or an equivalent degree of a foreign University, and

(iii) Teaching experience will be considered as additional qualification.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the quliafications prescribed in (ii) above.

Provided further that if a candidate possessing a doctorate degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until be fulfils these requirements.

Seven copies of the prescribed application forms will be supplied to the candidates from the office of the undersigned on payment of Rs. 10/- in person or by bank draft drawn on the State Bank of India in favour of the Registrar, Berhampur University, Bhanja Bihar, Berhampur-7 Dt. Ganjam along with a self-addressed envelope measuring 22 x 10 cms affixed with postage stamps worth Rs. 0.85.

The applications duly filled in along with attested true copy of certificates, testimonials and publications, etc should reach the undersigned on or before **30.5.77.** Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

Persons in Government service selected for appointment shall be allowed leave salary and pension contribution for one year only if they wish to retain their lien under Government.

The prescribed period of experience for the post of Reader will be calculated up to the last date fixed for the receipt of application.

Candidates will be required to appear before the selection committee at their own expenses. Selected candidates will be required to join the post within one month from the date of issue of the appointment order.

The University reserves the right to fill up or not to fill up the posts advertised and/or to call only selected candidates for interview.

Sd/-
R. C. Rajguru
REGISTRAR

UNIVERSITY NEWS, MAY 16, 1977. Regd. No. R.N. 7180/63 Postal Regd. No. D(C) 534

Dr. B. K. School of Business Management
Gujarat University
Ahmedabad 380009

Applications are invited for Faculty *positions in the following areas of* Business Management:

(a) Managerial Economics;
(b) Marketing Management;
(c) Production Management/ Quantitative Techniques.

(a) For Proficiency in Mathematical *economics* preferable.

(b) For M.B.A. specialised in Industrial Marketing or International Business *preferable*.

For (c) An Engineering Degree plus a Degree in Business Administration necessary.

The selected candidates will be suitably placed either as Reader or as Teaching/Research *Associates* as per U.G.C. scales.

In addition to basic pay, all allowances *as per rules* available. The prescribed forms and details can be obtained from the office of the Registrar on payment of Rs. 2/- by Money Order in favour of the Registrar, Gujarat University. Applications on prescribed forms alongwith a copy of bio-data should reach the Registrar **within 15 days** from the date of the publication of this advertisement.

K. C. Parikh
REGISTRAR

ANNAMALAI UNIVERSITY

Applications are invited to the following posts. Applicants are required to send 6 typed copies of applications in the prescribed form obtainable on payment of Rs. 5 which may be sent either by M. O. or Postal Order (not refundable) to the Registrar, Annamalai University, Annamalainagar-608101. Completed applications should reach the Registrar on or before **20th May 1977.**

The enveolpe should be superscribed stating "Application for the post of ....".

1. Reader in Tamil	...	2
2. Lecturer in Hindi	...	1
3. Lecturer in Philosophy	...	1
4. Lecturer in Mechanical Engineering	...	3
5. Lecturer in Civil Engineering	...	1

Computer Centre—Department of Engineering 'posts sanctioned by the U.G.C.'

6.(a) Head of Computer Centre	...	1
(b) Systems Engineer	...	1
(c) Maintenance Engineer	...	1
(b) Programmers	...	2
7. Lecturer in Music (Violin)	...	1
8. Full time Lady Warden	...	1
9. Steno-typist	...	1

Qualification

(1) Reader in Tamil

A Master's degree with first or Second Class. A research degree of Doctorate standard or published research work of a high standard in the subject. 5 years teaching experience of post-graduate classes and guiding research.

(2) Lecturer in Hindi

M.A. in Hindi first or second class. Knowledge of Linguistics and Dakshini and teaching experience with Ph.D. degree is desirable.

(3) Lecturer in Philosophy:

A Master's degree with first or second class with 3 years *teaching* experience at college level.

(4) Lecturers in Mechanical Engineering

A Master's degree in Engineering with first or second class—specialisation in Industrial Engineering/Machine Design/Production Engineering respectively with 3 years teaching experience.

(5) Civil Engineering

A Master's degree in Engineering with first or second class with specialisation in Hyderaulics and Irrigation with 3 years teaching experience.

(6) Computer Centre

(a) Head of Computer Centre: A Master's degree in Computer Science or equivalent with emphasis on Computer System Architecture and Software Engineering — Ph.D. Degree desirable. About 10 years experience out of which at least 4 years should be in leading technical/professional group of programmers and Analysts/ Engineers involved in computer Centre operations. Experience may be relaxed to 7 years for specially deserving candidates in view of the relevance and quality of experience.
(b) System Engineer: A Master's Degree in Electronics / Computer Science or equivalent. Up-to-date knowledge relating to computer hardware and software. About 5 years experience in technical / professional aspects in a Computer Centre.

(c) Maintenance Engineer: B.E. with Electronics. B.E. in *Electrical* Engineering or in Mechanical Engineering if they have worked as a Computer / digit system service / maintenance engineer.

Desirable:

Master's degree in specializing in digital Electronics. At least five years as Computer maintenance *Engineer or 6 years in Design or* Fabrication or testing or servicing of digital electronic equipment with at least 2 years in Computer or Unit record equipment maintenance.

(d) Programmers: A Master's degree in Mathematics / Statistics or Physics or B.E. or equivalent qualification. About 3 years experience in Programming knowledge of at least two higher level languages like Fortran/ PL-I/Cobel and one assembly language.

Desirable:

Degree in Computer Science and knowledge and experience of working with TDC-316 or an equivalent system.

(7) Lecturer in Music (Violin)

Preference will be given to the first grade Musicians with not less than 10 years experience in the field.

(8) Full-time Lady Warden for the Women Students Hostel.

Retired Lady Lecturers with experience as full or part-time Warden assignment in any Women's College may apply. Expected salary may be intimated.

(9) Steno-typist

Should have passed S. S. L. C. with typewriting English Higher Grade and Shorthand Higher Grade. Graduates with Stenographer's qualification will be given preference. Scale of pay : Rs. 210-5-245-10-325 plus D.A. Steno-allowance according to qualification.

Scale of pay:

Nos. 1 and 6 (d): Rs. 700-50-1250 plus D.A. Rs. 120 p.m.

Nos. 2, 3, 4, 5 and 7: Rs. 400-40-800-50-950 plus D.A. Rs. 120 p.m.

Nos. 6 (a) (b) and (c): Rs. 1100-50-1300-60-1600 plus D.A. Rs. 120 p.m.

(Eligible for the Vth Plan scales of pay if implemented)

Candidates called for interview should appear at their own cost. Candidates who are already in service should apply through their employers.

Annamalainagar
18th April, 1977 **REGISTRAR**

Printed & Published by ANJNI KUMAR, on behalf of the Association of Indian Universities
(formerly known as Inter-University Board of India), Rouse Avenue, New Delhi-110002
Grams : UNIBOARD. Phone : 276504 and 273037. Printed at DELHI UNIVERSITY PRESS, Delhi.